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AUTHOR Durley, Jill; Emlen, Rita; Knox, Kimberly; Meeker, Marcia; Rhea, Peggy

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ABSTRACT

This report describes a program implemented to improve reading comprehension in the content areas. The targeted population will consist of students in grades two, three, four, and five, in five midwestern schools, four public and one private. The problem of poor comprehension will be documented through test scores, parent and student surveys, and teacher anecdotal records. After initial review of the literature and analysis of the site, probable causes for poor comprehension were related to the lack of reading strategies, poor background knowledge, inadequate vocabulary development, and not enough general practice in reading. A review of solution strategies suggested by current research and by educational leaders, combined with an analysis of the problem setting, resulted in the selection of five major categories of intervention: activation of prior knowledge, acquisition of vocabulary, development of reading strategies, organization of story elements, and improvement of reading fluency. Based on results from tests, surveys, and anecdotal records, the following positive changes were noted. There was considerable improvement in students' reading comprehension skills. Additionally, meta-cognitive activities resulted in greater student involvement in, and responsibility for, their own learning. The data suggest that because of the intervention, students now have the knowledge and tools to comprehend reading material across the curriculum. The paper contains 56 references and 15 figures of data. Appendixes contain survey instruments, pretests, sample story maps, and a sample choral reading. (Author/RS)

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IMPROVING READING COMPREHENSION IN THE CONTENT AREAS

Jill Durley
Rita Emlen
Kimberly Knox
Marcia Meeker
Peggy Rhea

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Saint Xavier University & SkyLight Professional Development

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This Project was approved by

Advisor

Advisor

Dean, School of Education

Preliminary Abstract

This report describes a program implemented to improve reading comprehension in the content areas. The targeted population will consist of students in grades two, three, four, and five, in five midwestern schools, four public and one private. The problem of poor comprehension will be documented through test scores, parent and student surveys, and teacher anecdotal records.

After initial review of the literature and analysis of the site, probable causes for poor comprehension were related to the lack of reading strategies, poor background knowledge, inadequate vocabulary development, and not enough general practice in reading.

A review of solution strategies suggested by current research and by educational leaders, combined with an analysis of the problem setting, resulted in the selection of five major categories of intervention: activation of prior knowledge, acquisition of vocabulary, development of reading strategies, organization of story elements, and improvement of reading fluency.

Based on results from tests, surveys, and anecdotal records, the following positive changes were noted. There was considerable improvement in students' reading comprehension skills. Additionally, meta-cognitive activities resulted in greater student involvement in, and responsibility for, their own learning. The data suggest that because of the intervention, students now have the knowledge and tools to comprehend reading material across the curriculum.

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CHAPTER 1

PROBLEM STATEMENT AND CONTEXT

General Statement of the Problem

The students of the targeted second, third, fourth, and fifth grade classes in five schools exhibit poor reading comprehension skills that interfere with academic growth across the curriculum. The evidence of the problem includes low test scores in comprehension, anecdotal records documenting inconsistencies in comprehension skills, and parent and student survey responses.

Immediate Problem Context

Site A

The targeted school consists of 304 students in kindergarten through sixth grade. The racial-ethnic make up of the student body is 100% White. The school population consists of 96.7% of students who are from families in the middle to upper income brackets and 3.3% of students who are from low-income families (those who are eligible to receive free or reduced-price lunches). The attendance rate is 96.3%, with a 7.3% mobility rate and no chronic truants (School Report Card, 1999). The staff consists of 13 classroom teachers, two music teachers and two physical education teachers shared between schools, two special education teachers, two instructional aides, one part-time developmental reading teacher, and one part-time Reading Recovery teacher. Other personnel include a part-time computer instructor, one part-time librarian, one teacher of gifted students and one occupational therapist who are in the targeted school one day a week, one speech therapist, and one social worker. Three clerical aides, one

secretary, one principal, three cafeteria workers, and two custodians complete the personnel at the targeted school. There are ten teachers with masters degrees and one more presently working towards a masters degree. At the site, there is an average of approximately 11.5 years of teacher experience.

The targeted school, built in 1976, is a one-story modern building on eleven acres of land. This site was closed between 1984 and 1988 due to low student enrollment. For the 1988-1989 school year, it was reopened to hold early childhood classes. Each school year that followed, only one grade level was added. Since the 1995-1996 school year, this site has included grades K-6. The site has 14 regular classrooms, and one multi-purpose room that is used for lunch and physical education. The targeted school also provides special education, speech therapy, and a gifted program. Also available are a library, music room, and computer lab with 30 networked computers.

The targeted third grade classroom has two casement windows that face the school parking lot. The students' lift top desks are arranged in groups of four. The classroom also has a carpeted reading corner with bean bags available, student mailboxes, a writing center, three networked computers and one stand alone computer, and a classroom store in which students may purchase items with tickets used for a classroom discipline policy. The classroom is decorated with many colorful and motivational posters, student work, and several stuffed animals. Science and social studies are departmentalized.

At the targeted school, the district curriculum determines what is introduced, developed, and mastered at each grade level. Teaching methods vary to include traditional methods, whole-language, cooperative learning, hands-on activities, and peer coaching. Classrooms range from completely self-contained to departmentalized for certain subjects.

At Site A, students use the computer lab and library on a scheduled basis. The students also have P.E. and music twice a week. Reading Recovery is available for kindergarten and first graders, and developmental reading is provided for qualifying students in grades one through three. For those students who qualify in grades four through six, a gifted class is taught once a week. A complete inclusion program is implemented throughout the school. Other programs available include the Accelerated Reader program, an orchestra for grade six, and a variety of after school programs offered in the fall and spring.

The District

The targeted unit school district has four elementary schools, one junior high, and one high school, with a total enrollment of 2,810 students. The district consists of 100% White students. The faculty and staff of 178 members are also 100% White, with 26.1% being male and 73.9% being female. The average teacher salary is $41,338, while the average administrator salary is $68,231 (School Report Card, 1999). The district has 12 administrators, including one principal at each of the six school buildings, one assistant principal, two administrative assistants, one assistant superintendent, one superintendent, and one director of special education. According to the School Report Card, the community has an 89.9% graduation rate with approximately 85% of these students pursuing higher education.

The Surrounding Community

The targeted community is centrally located between two interstate highways, which makes it well suited for industry and transportation. Business size varies from an international company to medium-size manufacturers, contractors, retailers, and service companies in this

approximately 15 square mile community. The population of 15,500 residents continues to grow along with the arrival of many new businesses locating in the community along the interstate (Welcome to Our Town, 2000). According to the Neighborhood Explorer web site, the median household income is $46,525. The unemployment rate is 3.9%. The targeted community has many things to offer including quality schools, new health care facilities, recreational sport and cultural activities, and strong spiritual roots that run deep (Welcome to Our Town, 2000).

Site B

The targeted school consists of 299 students in grades pre- kindergarten through six. The racial-ethnic make up of the student body is 98% White, 1.0% Black, and 1.0% Asian/Pacific Islander. The low-income students, who are eligible for free or reduced lunches, make up 14.9% of the school population. The attendance rate is 94.9%, with a 14.8% rate of mobility and a 0.6% rate of chronic truancy (School Report Card 1999).

The staff consists of 40 classroom teachers, with an average of 12.8 years of teaching experience, two music teachers, two physical education teachers, five special education teachers, five instructional aides, and a Reading Recovery teacher. Other employees include a librarian, a computer/gifted instructor, a speech therapist, and a team of special education services personnel who are in the building twice a week. There are four secretaries, one bookkeeper, and four custodians at the targeted school. One maintenance person takes care of the entire unit. There are eight teachers with a masters degree and four teachers currently working towards a masters degree.

Site B is comprised of three buildings, all built at different times, which are connected by a continuous hallway. The kindergarten through grade six building is the newest and was built in

1962. It is a one-story brick building with two wings, and this area houses the unit office, the library, the gymnasium, the art room, and twenty classrooms. In addition, this section of the school includes a computer lab, a teachers' lounge, a supply room, and several janitors' closets. The middle section of the complex is the junior high school, and it also is a one-story brick building, with classrooms for grades seven and eight. The cafeteria is located in this area, as well as the band and general music rooms. The high school is the oldest section of the unit district and is a three-story brick building located at the north end of the complex. It contains classrooms for all high school students and also includes a gymnasium and a shop area.

Students in grades kindergarten through six have access to the computer lab and the library on a scheduled basis. Programs within the district include Early Childhood, Bright Horizons, speech and language, Title I, and three levels of resource classes. A gifted program is offered for students who qualify in grades one through six. Site B employs cross-curricular instruction and cooperative learning in all areas of the elementary building (School Mission Statement). Student portfolios are begun in the elementary grades to assist teachers, parents, and students in evaluating progress. Mathematics and reading have recently been given the most emphasis. Individual work and group work are implemented at all levels. Every student gains experience in computer technology and special curriculum projects, and fairs in math, science, and the arts are held each school year. Early elementary students receive instruction in Intensive Phonics, a program that is reinforced through the fourth grade. Weekly visits are made by a special education coordinating team, an occupational therapist, and a social worker. Physical education and music are taught at all levels, and art is offered beginning at grade seven. Band begins the summer after fourth grade. Funds for activities such as field trips, the end of year

picnic, and classroom supplies are partially provided for by an active parent organization. The Booster Club supports all athletics.

The targeted fourth grade classroom at Site B is located in the northwestern corner of the elementary wing. It is immediately next to doors that open onto the track and baseball diamond behind the school. A system of florescent lights, and the light from two windows on the west wall, supplies the classroom light. The east wall is covered with closets for students, a display window with a glass front that opens into the hallway, storage areas, and a sink. The north and south walls are covered with blackboards, and the west wall contains a bulletin board. Maps, a screen, and a television and VCR hang on the north wall. There is one computer in the classroom, and a shelf of library and reference books is located in the southwest corner, along with student mailboxes and baskets for papers being turned in for grading. The concrete walls of the room are painted blue and the students' desks are tables with blue plastic chairs. The desks are arranged in rows and are rearranged many times during the course of the school year. A forced-air heating unit located on the west wall heats the room. The room is not air-conditioned, but does contain four fans to cool when necessary.

District curriculum, developed by a committee of teachers, determines which skills are introduced, mastered, and reviewed at each grade level. Illinois standards are met through a variety of teaching techniques and student activities. Teachers employ departmentalized instruction, self-contained instruction, and inclusion with an aide.

The District

The targeted school is a unit district comprised of three connected buildings, housing 552 students, all located on one campus area. The racial-ethnic make-up of the district is 98.9%

White, 0.9% Black, and 0.2% Asian/Pacific Islander. The faculty and staff members are 100% White, with 20.2% male and 79.8% female. The average teacher salary is $32,526, while the average administrator's salary is $56,388 (School Report Card, 1999). The district has three administrators, an athletic director, and a dean of students/counselor. According to the School Report Card, the expected graduation rate is 96%, with 80% of the graduates pursuing a higher education.

The Surrounding Community

Site B is located in a rural area in the central part of the state. There is one school in the community that makes up the entire district. The population of the community has been on a downward trend the past 10 years and now stands at 2,000 people, 96% of which are White. The rest of the community is 1% Black, 1% Asian/Pacific Islander, 1% American Indian, and 1% Hispanic. The majority of the people work outside of the district. The average per capita income is $12,347, with 6.6% living at or below poverty level (1990 Census).

The largest businesses are an automobile dealership, an agriculture chemical service, and an industrial warehouse. There is one grocery store, three restaurants, a bowling alley, a public swimming pool, two parks, and three public baseball diamonds. There is an appliance business and an ice cream parlor. Main Street has been decorated by the historical society, with antique lamps and sidewalk bricks containing names of past and present citizens of the town. Many activities are held which include the entire community, including a Christmas walk, old car cruise-ins, and Labor Day festivities. Because the district is so small, both school and town activities are important events and are supported by everyone. Organizations and offices within the community, such as the volunteer fire department, ambulance service, American Legion, and

the city clerk, present educational programs for the students of the district each year. In turn, the school provides help with any area needed for community activities. The community and the school at this site are tightly woven together in a bond of small-town pride.

Site C

The targeted school houses 239 students, pre-kindergarten through fourth grade, and is located in a rural area of the Midwest. According to the School Report Card, the racial-ethnic makeup of the student population is 99.2% White and 0.8% Hispanic. Students in low-income families who qualify for free or reduced-price lunches make up 11.7% of the student body. The attendance rate at the targeted school is 97.1% with a mobility rate of 12.7%. There are no chronic truants (School Report Card, 1999).

Site C employs one principal, 11 regular division teachers, three special education teachers, one Title I teacher, two physical education/health teachers, one speech therapist, one part-time social worker, one part time school psychologist, and eight teacher assistants. Two music teachers and one technology coordinator are shared between schools. Other staff members include one library aide, one clerical aide, one secretary, one part-time school nurse, two custodians, three full-time cooks and one part-time cook. The racial-ethnic composition of the staff is 100% White. The average teacher experience is 16 years. The principal and three teachers hold masters degrees, and two of the teachers are currently working toward their masters degrees. The average teacher salary is $37,736, and the average administrator salary is $65,807 (School Report Card, 1999).

The targeted school is a one-story brick building. It is well maintained and is in very good condition. The original building was completed in 1963, and a new wing was added in

1974. The school contains 10 regular division classrooms, and five other classrooms to accommodate special education, Title I, speech therapy, Bright Beginnings/Early Childhood, and Life Skills. A multi-purpose room houses physical education classes, assemblies, and lunch. The facility also includes a kitchen, two offices, a conference room, a library, and a large computer lab.

The school sits on five acres of land. A playground is adjacent to the school and consists of a blacktop area and a large grassy area filled with outdoor play equipment. The grounds also include a parking lot, a 95-foot by 187-foot nature area, and a 32-foot by 54-foot butterfly garden.

The targeted second grade classroom is 26-feet by 39-feet. It includes a sink and a small bathroom. The classroom contains five small windows and two ceiling fans for ventilation. The students' desks are arranged throughout the room in groups of four. Three sides of the room are covered with large bulletin boards and marker boards, while the fourth side contains storage cabinets. Educational posters, as well as student work, are displayed throughout the classroom. There are three student computers and one teacher computer, all with Internet access. Although the floor is tiled, there is a large carpeted area for the students to use for silent reading and class discussions.

State educational standards are met through district curriculum at the targeted school. These standards are met through a variety of teaching strategies based on the developmental level of the students. Guided reading, Writer's Workshop, Intensive Phonics, the Accelerated Reader program, learning centers, and hands-on activities are examples of a few of these strategies. Teacher styles in the targeted school range from traditional to constructivist.

The District

The targeted school is part of a unit district, which consolidated in 1957. The district draws from an 84.5-mile radius that includes two small villages located only five miles apart. In addition to the elementary school, the district also includes one junior high school and one high school. The junior high is located in the adjacent village. The high school is located next to the targeted school. The elementary school cafeteria and the high school gym facilities are shared between the two schools. The close proximity between the two schools also allows high school students to assist students and teachers in the targeted school.

The total population of the three schools is 633 students. The district consists of 99.2% White and 0.8% Hispanic students. The faculty and staff are 100% White. There are four administrators in the district. Each of the three buildings has a principal. The superintendent's office is located in the high school. The graduation rate is 94.5%, with 84% of these students pursuing their education at a two-year community college, a four-year university, or in an apprentice program.

The Surrounding Community

The community in which the targeted school is located is a very small, conservative village surrounded by farmland. The village population is 1,910 citizens, and the average household income is $30,789. Eighty-two percent of the residents have earned a high school diploma, and 11.4% hold a bachelors degree or higher (1990 Census).

The largest employer in the community is the school district. There are, however, two car dealerships, several small-scale industrial work places, a grocery store, a doctor's office and numerous small businesses providing goods and services. The targeted community has five

churches offering a variety of worship opportunities to its members. A local recreation board offers soccer, basketball, and baseball programs to the school-age population. The large community park and swimming pool offer recreation to all of the residents.

Site D

The targeted school has 347 students in grades five through eight. The racial-ethnic make-up is 96.3% White, 2.0% Asian/Pacific Islander, 1.4% Hispanic, and 0.3% African American. Of the students in the school, 6.9% fall within the low-income range and are eligible to receive free or reduced-price lunches. The attendance rate is 96.1%, with the mobility rate at 8.7%. There are no chronic truants (School Report Card, 1999).

The staff is comprised of 23 full-time teachers and two part-time teachers. While the fifth grade is self-contained, grades six through eight are departmentalized. There are four sections of each grade. The faculty consists of these 16 homeroom teachers along with four special education teachers, two physical education teachers, a computer teacher, a band instructor, a choral music teacher, and an art teacher who divides her time between the two schools in the district. Support staff includes two certified teachers who serve as teachers' aides, a school counselor, a computer consultant, a library worker, and two secretaries. The school employs eight kitchen workers, three maintenance personnel, and one crossing guard. There are eight bus drivers who service both buildings in the district.

The one-story school building, built in 1980, is in excellent condition. The building has had two additions to accommodate the growing population of the community. It houses 22 classrooms, including two science laboratories, a computer lab with Internet access, and a band/music room. The school also contains two gymnasiums, both of which serve as dining areas at lunchtime. Other instructional areas include a second computer lab with Internet access

and a library. The physical education teachers, the band and music teachers, and the guidance counselor all have their own offices. All rooms in the school are air-conditioned. The building is used after school hours by the local athletic association.

The school offers a variety of services to students. Each grade level contains an inclusion classroom. There is a speech pathologist who divides her time between the two buildings in the district. A school psychologist and a physical therapy/occupational therapy specialist also service the school. Each homeroom in grades five through eight receives large group guidance from the guidance counselor. There is a gifted program for grades five through eight that meets once a week. In the seventh and eighth grades, accelerated literature and math courses are offered. In the fifth grade, a drug education course is taught second semester. To meet the needs of working parents, there is a latch key program housed at the other building. Many extracurricular and co-curricular activities are offered, including band, chorus, art club, Math Counts, Scholastic Bowl, yearbook, literary club, student council, baseball, softball, volleyball, boys' basketball, cheerleading, pom pon, and track.

Through a variety of successful fundraising methods, the parent-teacher organization has been instrumental in assisting the school in providing funding for programs, activities, and instructional materials. Their most recent priorities have been to upgrade computers in the district to meet the district's technology needs, to aid in the cost of air-conditioning both school buildings in the district, and to provide teachers with additional funds for classroom projects.

The fifth grade classroom observed throughout this study has a small window in one corner of the room. There are two computers in the back of the classroom and one computer at the teacher's desk. All computers have Internet access and the Accelerated Reader program. In addition, students are able to use the computers to e-mail other students and teachers within the

network. There are two bulletin boards in the classroom, one of which is mathematics oriented. Dry erase boards extend the length of two walls of the room, and bookshelves line the walls below the dry erase boards. There are two study carrels and a small round table for student use. The lift top desks are arranged in groups of four or five. Each student has a mailbox where they retrieve graded assignments, newsletters, and communication to parents. The room contains maps, a large screen, and instructional posters. There is a CD player behind the teacher's desk.

The District

There are two buildings in the district. An elementary building houses pre-kindergarten through fourth grade instruction, as well as a behavior disorder classroom, and the middle school houses grades five through eight. The central office is located in the elementary building. There are three administrators in the district, two of whom are male. The average administrator salary in the district is $66,533 (School Report Card, 1999).

Of the teachers in the district, 100% are White, 84.1% are female and 15.9% are male. Masters degrees have been earned by 18.7% of the teachers in the district, and the average teaching experience in the district is 14.5 years. The average teacher salary in the district is $34,348. The pupil/teacher ratio is 18.2:1 (School Report Card, 1999).

According to the School Mission Statement, "The district is committed to creating a learning environment which provides each child optimum opportunities to reach his or her full potential and facilitate the development of responsible citizens in democratic society." This is accomplished by the integration of a quality basic education, diverse co-curricular and extracurricular activities, and life skills (School Mission Statement). The district emphasizes technology skills and employs a computer consultant, maintains and upgrades computers, and

provides ongoing teacher training. Also, both schools utilize a writing program developed by teachers in the district.

The Surrounding Community

The community setting is rural, with a village population of 1,207. According to the 1990 Census, there were 276 school-age children in the village, though this number continues to grow. A mayor and trustees govern the village, and it is serviced by a volunteer ambulance and fire department. Within twenty minutes of a metropolitan area, the village contains two shopping centers, which include a supermarket, a health club, small retail shops, and restaurants. Other retail shops, restaurants, and professional services are available throughout the village. The village also has one bank and several churches. To provide for recreational opportunities for its increasing population, the village has three parks, an extensive athletic association, and a women's organization.

Of the adults in the school community, 85.9% are high school graduates, and 23.5% of those have obtained bachelors degrees or higher. The unemployment rate is minimal, at 2.4% of the population. The average household income in the village is $44,479 (1990 Census).

Site E

Site E is a parochial school with a current enrollment of 400 students composed of 96% White, 2% Black, and 2% other. Of these students, 82% are Lutheran and 18% are non-Lutheran. The current school population comes mainly from average to above average income households. However, according to the current school records, 3.35% of the students receive free or reduced lunches. The school's attendance rate is 95.8 % (School Record, 1999).

The mobility rate for the 1999-2000 school year was relatively high at 15%. During this time, the school was undergoing some major changes in administrative personnel. Due to administration problems, the principal of five years was asked to leave, and in the summer of 1999 accepted a call to another school. The school board then hired an interim principal to help resolve some of the problems.

The students at this parochial school take the California Achievement Test. The results of these tests indicate that 78.6% of the students in this school score above the 50th percentile in reading, and 71% of the students scored above the 50th percentile in math (School Record, 1999).

The instructional staff consists of 20 full time instructors and one principal. Out of these 20 instructors, 70% are female and 30% are male. Six of these instructors have a masters degree, with one presently working toward a masters degree. The average teacher experience is 13.8 years, and the average teacher salary is $34,247. The average administrator salary is $58,764 (School Record, 1999). In addition to the full time instructors, the school employs eight part-time instructors, an office manager, one secretary, and one receptionist. There are numerous parent volunteers.

The building houses grades kindergarten through grade eight, with two classrooms per grade. The building contains 17 classrooms, a gym, and a combined kitchen and cafeteria. It also contains a music room used for band, choir, and orchestra, a resource room, and three offices. The original building was built in 1958-1959, with the music room and two classrooms added in 1984. Then, in 1992, the school purchased two portable classrooms, which house the library and the computer lab. Currently, the Board of Education is doing a feasibility study and working toward a building project that will add classrooms. This will include the library and

computer lab as permanent additions to the main building, and possibly will include the addition of a gym.

The targeted fourth grade class has 21 students. The classroom has windows along the north wall of the classroom, which extend from 30 inches above the floor to the ceiling. On the south wall is the entrance door to the room, along with cupboards and a small sink. The front wall contains chalkboards, and the back wall is covered by three large bulletin boards. The technical equipment includes a television, videocassette recorder, two student computers, and a teacher computer with Internet access. The school is currently in the process of upgrading their computer equipment.

The fourth grade is self-contained, with the exception of science and social studies. One fourth grade instructor teaches science to both classes, and the other instructor teaches social studies to both classes. The students have different instructors for physical education, music, choir, and computer.

The District

Site E is a Lutheran-sponsored school housing grades kindergarten through eight. The majority of the students come from the three sponsoring churches, and other churches in the surrounding communities, while the non-Lutheran students come mainly from the immediate area.

Three Lutheran churches, desiring quality Christian education for their children, started the school in 1959. Four elected members from each of the sponsoring churches form the school board that governs the school. The principal and the pastors from the three churches assist the school board.

The current tuition rate per student is $3,597. If the family belongs to one of the three governing churches, that church pays $1,200 towards the student's tuition. The church also provides a special tuition assistance program for any family that needs financial assistance. In exchange, the families are expected to attend church on a regular basis and contribute financially as they are able.

The Surrounding Community

Site E is located in a Midwestern city that received its charter to incorporate in 1891. The population is 117,000, and the city covers an area of over 40 square miles. Shopping malls, a wide assortment of variety stores, and a number of different kinds of restaurants are spread throughout the city. The Civic Center provides variety in entertainment for the city and surrounding communities. Another attraction to the city is the park district, which encompasses approximately 12,000 acres of land and preserves. The park district includes a nature center, zoo, botanical garden, five golf courses, indoor ice rink, tennis courts, soccer fields, and baseball diamonds. The city has three major hospitals, a mental health center, a sports medicine and rehabilitation center, and affiliations with a children's research hospital (EDC Our Town, 2000).

A city council form of government, with five district representatives and five at-large members, governs the city. A mayor heads the government and also serves as an at-large member of the city council.

Within this city is the middle class neighborhood in which Site E is located. The neighborhood consists of predominately single-family homes ranging in value from $46,000 to $120,000 (EDC Our Town, 2000). The median family income of the neighborhood is $38,790 (1990 Census). Ten percent of the students are within walking distance of the school, and the

rest of the students are transported by car pools or public transportation from various communities within the city or outlying communities.

National Context of the Problem

Research, as well as classroom experience, has shown that teachers are facing more challenges today "to produce competent readers who comprehend what they read" (Mathes, Fuchs D., & Fuchs L., 1997, p.1). Adams's study (as cited by Mathes, 1997) found, "An estimated one in three children experience significant problems in learning to read; one out of five adults is functionally illiterate; and an additional two million adults join the ranks of very poor readers each year" (p. 1).

Teachers and administrators acknowledge that reading is the foundation of learning. In order to be successful in the classroom and in life, good reading skills are essential. Keeping this in mind, it is easy to understand the growing concern about the number of students who are poor readers. "Only one-third of U.S. students read at levels that are likely to assure them of academic success and good jobs" (Carbo, 1996, p. 75).

Reading difficulties span the grade levels, from beginning readers in the primary classroom, to high school and college students. Even though educators teaching children in the primary grades are thought best equipped with the knowledge and strategies to teach struggling readers, research shows that about 30% of U.S. students exit the primary grades without the basic skills needed to be competent readers. By the time students reach middle school and high school, lack of reading skills causes "acute academic and social problems, and high school faculties are usually at a loss to remedy the problem" (Showers, Joyce, Scanlon, and Schaubelt, 1998, p. 27). According to recent statistics from the National Assessment of Educational

Progress, 40% of seventh graders cannot read with enough fluency to comprehend their textbooks. This percentage increases to 60% for twelfth grade students (Carbo, 1992).

Across America there is a debate concerning the best way to simulate and develop emergent readers. Traditional views of reading have been replaced by few definitions that operate from a cognitive science base. The young reader is no longer viewed as an empty container waiting to be filled with knowledge. Rather, understanding in reading is a result of a student combining prior knowledge with new information and vocabulary ownership, and using these in a manner meaningful to the student. These skills are crucial to the comprehension of new material across the curriculum (Knuth and Jones, 1991).

CHAPTER 2

Problem Documentation

Problem Evidence

In order to document the current levels of reading comprehension skills exhibited by the students in the targeted second, third, fourth, and fifth grade classrooms, the teacher researchers at each site gathered information from four measures: pretests, student surveys, parent surveys, and teacher anecdotal records. Pretests were given to each of the participants during the second week of the school year. These tests were designed as a tool to measure overall student comprehension. The data from these pretests was compiled and analyzed by site and is shown in Figure 1 through Figure 5. Determination of student attitude towards their own reading was attained through the use of student surveys. These surveys were given at two levels: primary, or grades two and three, and intermediate, or grades four and five. The data from these surveys provided insight into individual reader perception towards personal and academic reading achievement and is shown in Figures 6 and 7. A third tool, a parent survey, was given in order to gain insight into the parents' perspective of their children's reading and comprehension skills. This data was also organized at two levels and is shown in Figures 8 and 9. The final tool used to gather information at each of the five sights was initial teacher anecdotal records. Teacher researchers observed students and made note of any and all significant information as it pertained to student ability to comprehend class material. The anecdotal records were reviewed and used as a guide in determining the types of interventions needed, and they are discussed, along with the pretests, by site.

Site A

The pretest at Site A (Appendix D) contained a total of nine possible points. Students missing zero received an *Excellent* score, and those missing one received a *Good* score. Students who missed two were given an *Average* score, and those missing three or more received a *Below Average* score. The results of the pretest are shown in Figure 1.

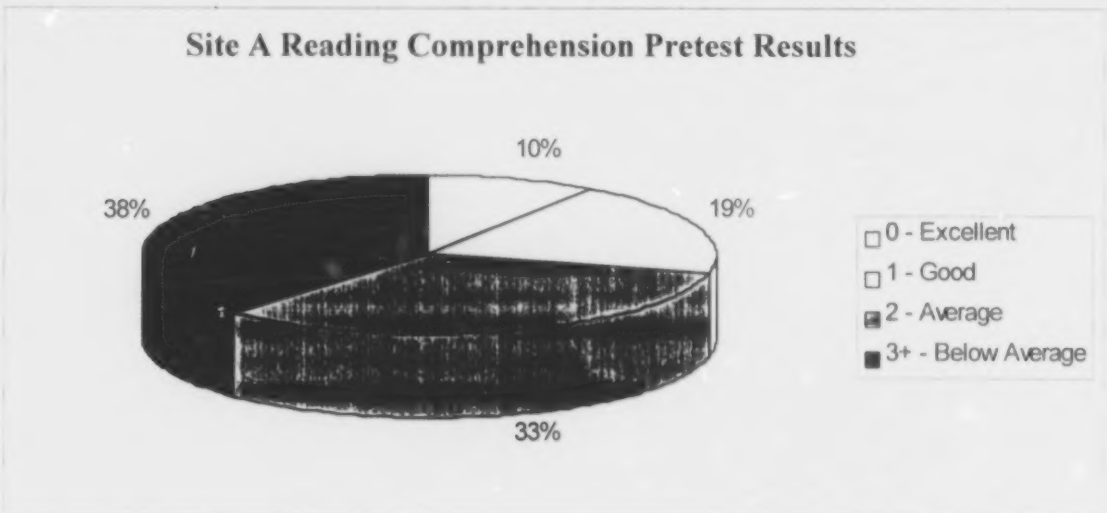

Figure 1: Pretest results for third grade at Site A during the second week of the 2000-2001 school year.

The results show that of the 21 students given the pretest, 10% of the students received an *Excellent* score, while 19% received a *Good* score. In addition, 33% of the students tested had an *Average* score while 38% received a *Below Average* score. It was disturbing to note that only 29% of the students received an *Excellent* or *Good* rating.

According to teacher anecdotal records at Site A, there was a wide discrepancy of socio-economic background among students in this classroom. As a result, the background knowledge and life experiences of these students vary greatly. It was also noted that students in this classroom do not choose to read for pleasure when the opportunity presents itself and thus lack

independent practice in reading. Additionally, many students are able to read fluently but are unable to tell what they have read in their own words. This in turn causes difficulty in reading and understanding textbook material. This, in combination with 71% scoring *Average* or *Below Average* on the pretest, shows a need for a reading comprehension intervention at this site.

Site B

Twenty-seven students in the targeted fourth grade classroom at Site B were given a reading comprehension pretest containing two paragraphs and nine questions (Appendix E). The resulting scores indicated percentages of students tested who scored at each grade level, and are shown in Figure 2.

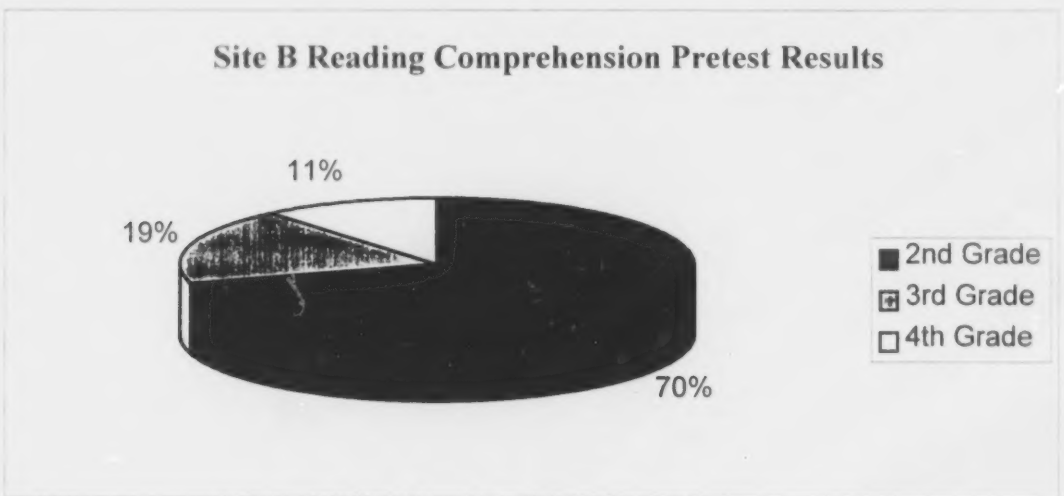

Figure 2: Number of fourth grade students at grade level equivalents first semester 2000-2001.

Student results ranged from scores at the second grade level through scores at the fourth grade level. It is important to note that a large majority of fourth grade students tested, 70%, scored at the second grade level. Nineteen percent of the students tested scored at the third grade

level. Of the students tested at Site B, only 11% scored at the fourth grade level, and no students scored above the fourth grade level.

A total of 89% of the fourth grade students at Site B scored below fourth grade level. Additionally, through teacher anecdotal records, it was noted that students in this classroom had difficulty reading and understanding textbook material and could not easily retell a literature story in their own words. Students also had problems with identifying the main idea and supporting statements in a selection, and with applying what they had read across the curriculum. Not only were students poor at making predictions, but they also exhibited inadequate questioning skills. The data from these two tools, pretests and anecdotal records, would indicate a need for improving reading comprehension through classroom intervention.

Site C

In order to document reading comprehension skills exhibited by the students at Site C, a pretest (Appendix F) was given during the second week of school. A total of eight points was possible on the pretest. Students missing zero received an *Excellent* score, and those missing one received a *Good* score. Students who missed two were given an *Average* score, and those missing three or more received a *Below Average* score. The results of the pretest are shown in Figure 3.

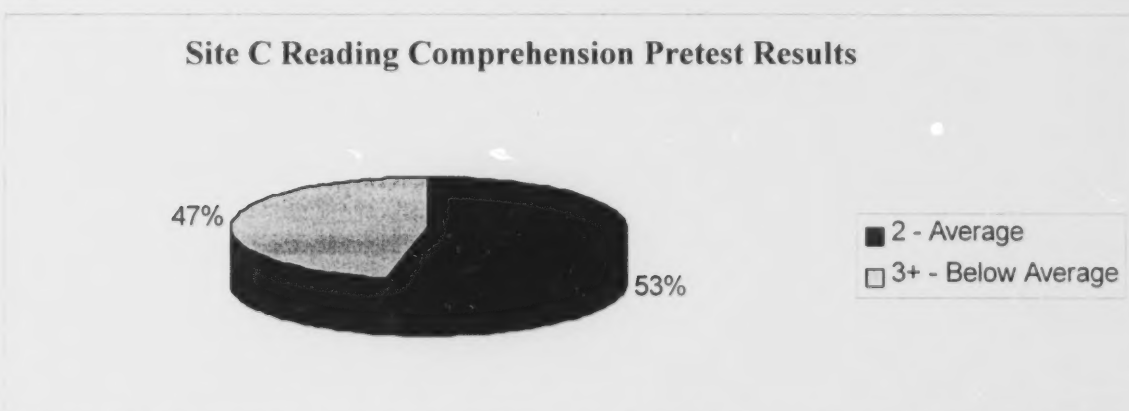

Figure 3: Pretest results for second grade at Site C during the second week of the 2000-2001 school year.

It is noteworthy that out of fifteen students given this pretest, no one received an *Excellent* or *Good* rating. Fifty-three percent were in the *Average* range, while the remaining 47% scored *Below Average*. These results are disturbing, especially when put into the context that the entire class scored at or below average. Teacher anecdotal records indicate that students are unable to use pre-reading strategies to help them comprehend classroom material. These strategies include activating background knowledge, using titles and pictures to predict, and recognizing a purpose for reading. For many students at this site, reading means simply reading words fluently, but not thinking about what they have read. This directly influences their ability to read and understand material, especially nonfiction text. The combination of information from the pretest and teacher anecdotal records would indicate the need for classroom intervention in reading comprehension.

Site D

The teacher researcher at Site D administered a pretest (Appendix G) that consisted of 30 comprehension questions. All students completed the pretest during the second week of school. Students scoring a 91% or above on the pretest earned an *Excellent* rating. Students scoring 81% to 90% received a *Good* rating. Students falling in the 71% to 80% range received an *Average* rating. Those who scored 70% and below received a *Below Average* rating. These results are shown in Figure 4.

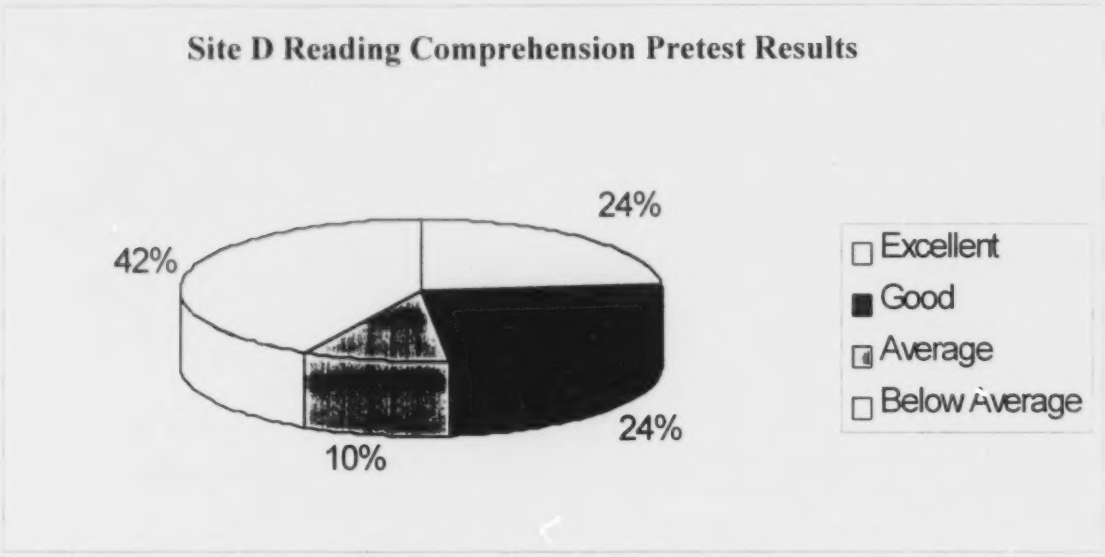

Figure 4: Pretest results for fifth grade at Site D during the second week of the 2000-2001 school year.

It was interesting to note that almost one-half of the class earned scores of *Good* or *Excellent*, and nearly one-half of the class earned *Below Average* ratings. Only two students fell within the *Average* range. Teacher anecdotal records at Site D reveal that students have difficulty thinking independently and asking questions about their reading. Additionally, they are unable to identify key ideas in their reading and are deficient in vocabulary development. It is difficult for many of the students to retell a story in their own words and write about what they have read. The pretest results and teacher anecdotal records indicate a need for improvement in reading comprehension skills through classroom intervention.

Site E

In order to evaluate the reading comprehension ability of the students at Site E, a reading comprehension pretest (Appendix H) was given to the students during the second week of the school year. The test consisted of 40 questions dealing with various aspects of reading

comprehension. Students answering 35-40 questions correctly received an *Excellent* score, whereas students answering 30-34 questions correctly received a *Good* score. Students answering 25-29 questions correctly received an *Average* score, and students answering less than 25 questions correctly received a *Below Average* score. The results of this pretest are shown in Figure 5.

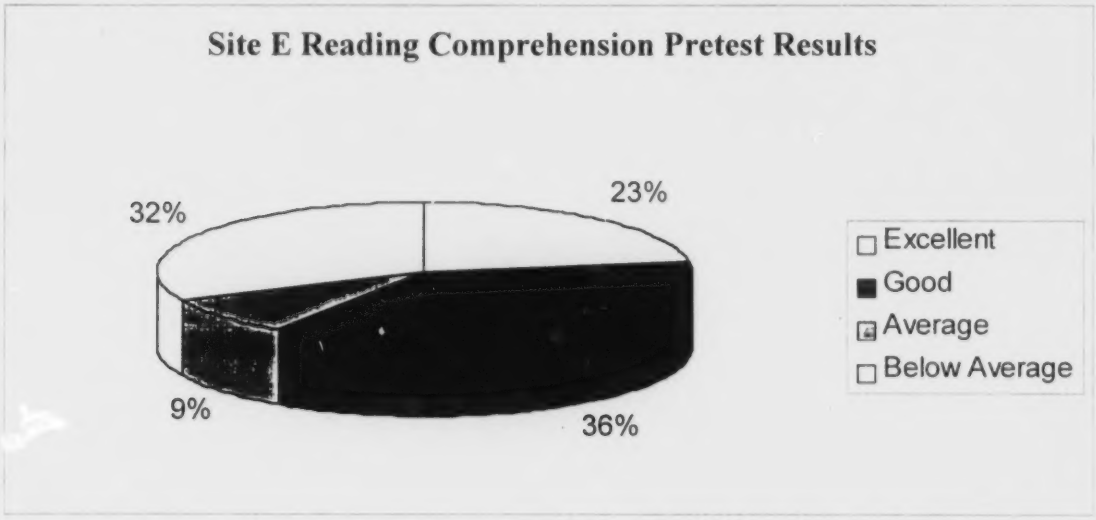

Figure 5: Pretest results for fourth grade at Site E during the second week of the 2000-2001 school year.

As Figure 5 shows, 23% of the students at Site E received an *Excellent* rating, 36% received a *Good* rating, 9% received an *Average* rating, and 32% received a *Below Average* rating. Although over one-half of the students, 59%, received an *Excellent* or *Good* score on the pretest, 41% scored in the *Average* or *Below Average* range. In addition, students at this site were noted through teacher anecdotal records, to have problems with organization of thoughts and processes pertaining to reading comprehension. Students also had difficulty recalling prior knowledge and relating that information to current material. These results indicate there is a strong need for improving reading comprehension at this site.

The targeted classes were given a survey to complete during the first week of the intervention regarding their attitudes and perceptions toward their reading comprehension skills. In order to meet the needs of both primary and intermediate levels, different styles of surveys were given. The primary reading survey (Appendix B) results are shown in Figure 6 and the intermediate survey (Appendix C) results are shown in Figure 7.

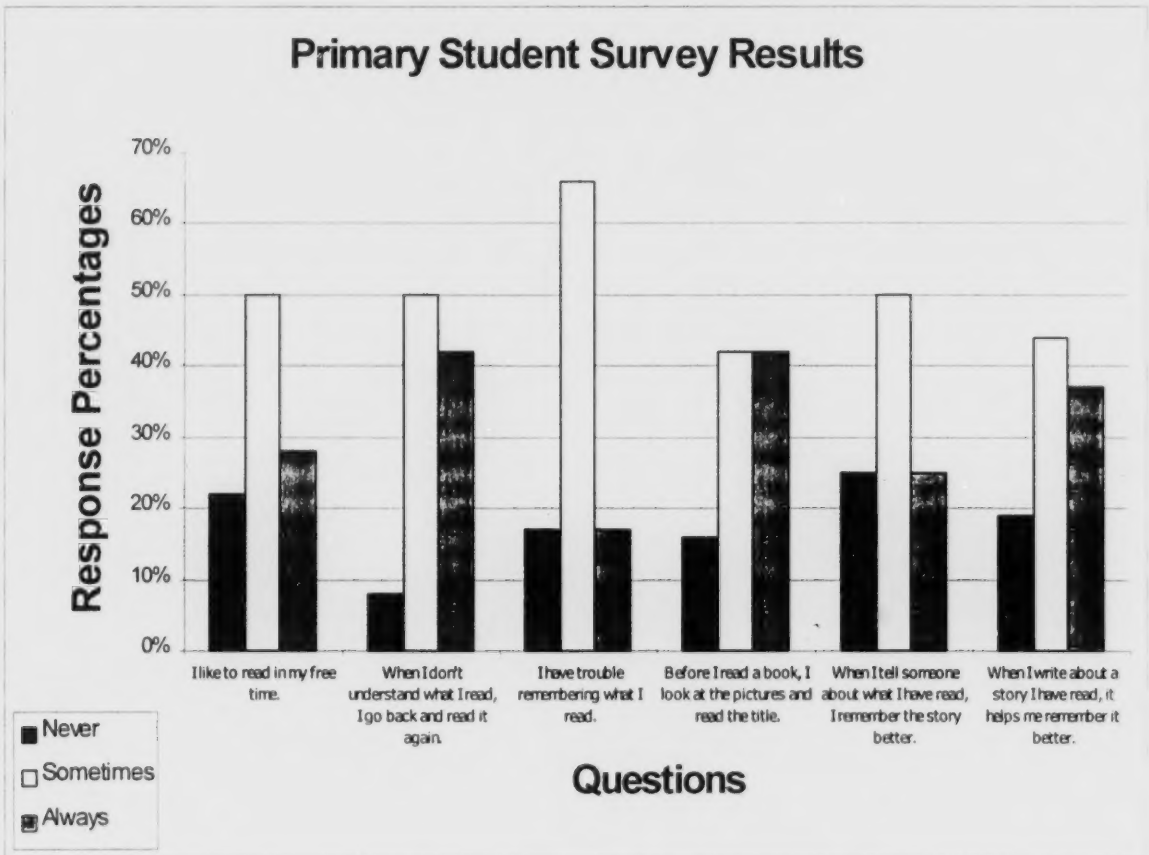
Primary Student Survey Results
Response Percentages
70%
60%
50%
40%
30%
20%
10%
0%
I like to read in my free time.
When I don't understand what I read, I go back and read it again.
I have trouble remembering what I read.
Before I read a book, I look at the pictures and read the title.
When I tell someone about what I have read, I remember the story better.
When I write about a story I have read, it helps me remember it better.
Never
Sometimes
Always
Questions

Figure 6: Reading survey results for the targeted primary classes during the second week of the 2000-2001 school year.

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The primary targeted classes consisted of 36 second and third grade students. In regards to their reading comprehension skills, the students were asked to respond to the questions as *Always*, *Sometimes*, or *Never*. The survey consisted of ten questions. However, the teacher researchers came to the conclusion that questions three, five, six, eight, nine, and ten were best suited towards the action research objectives, as they most directly related to teacher anecdotal records kept at each site. Additionally, these questions gave teacher researchers insight into student meta-cognition as it pertains to their own reading.

In question three, the students were asked if they read in their free time. The results of this survey showed 78% of the students *Always* or *Sometimes* read in their free time, while 22 % *Never* did. This would indicate lack of student desire to practice reading, and could possibly be directly related to lack of skill development for successful reading comprehension. In question five, 92% of the students shared that they *Always* or *Sometimes* went back to read again when they didn't understand something while 8 % *Never* reread. When students were asked in question six whether they had trouble remembering what they read, 17 % indicated they *Always* had trouble, 66% only *Sometimes* had trouble, and 17% *Never* had trouble. These responses indicate that the majority of students have, at some time, had difficulty internalizing reading material, which may be related to poor recall of prior knowledge and to the focus on fluency instead of reading for meaning. In question eight, the students were asked if they looked at the pictures and read the title before they read the text. Eighty-four percent of the students *Always* or *Sometimes* looked at the pictures and title while 16% *Never* did. Pre-reading strategies, such as looking at the title and pictures, aid in retelling and relating anything familiar in order to understand new material to be read. When students were asked in question nine if they remembered the story better when they told someone about it, 75% of the students shared that

they *Always* or *Sometimes* remembered the story better while 25% *Never* remembered it better. Finally, 81% of the students indicated in question ten they *Always* or *Sometimes* remembered the story better when they wrote about it while 19 % *Never* remembered the story better. These responses show that students need more exposure to talking and writing about their reading, and that enhanced and enriched practice of both would be an aid to reading comprehension.

Students in the three targeted intermediate classes were given a survey to determine their reading habits and attitudes toward their own reading ability. Students taking part in this survey were in grades four and five, and the survey was given at the beginning of the first semester. This survey contained ten questions. However, teacher researchers determined that questions one, four, six, seven, and ten were best suited towards the action research objectives, as they most directly related to teacher anecdotal records kept at each site. The results for five of the questions are shown in Figure 7. As in the primary survey, these questions gave teacher researchers insight into reading strategies that students employ.

Intermediate Student Survey

Question 1: How much free time do you spend reading each day?	Question 4: When you come to a word you don't know, what do you do most often?	Question 6: How often do you read with other people in your home?	Question 7: When you finish reading a story, are you able to retell it in your own words?	Question 10: Does writing about something you've read help you remember it?
0-30 min. 63%	Skip it 15%	Never 42%	Never 4%	Never 5%
31-60 min. 31%	Use words around it 41%	Once a week 37%	Sometimes 61%	Sometimes 62%
61-90 min. 3%	Look it up 9%	Several times a week 14%	Often 24%	Often 30%
91-120 min 3%	Ask someone 35%	Daily 7%	Always 11%	Always 3%

Figure 7: Reading comprehension survey results for the targeted intermediate classes during the first semester of the 2000-2001 school year.

Students were asked in question one to specify how much of their free time they spent reading each day. Of the students questioned, 63% spent from zero to thirty minutes per day reading on their own. A little over 30% read each day for one-half an hour to an hour, and only 6% spent an hour or more on free reading. Students responding to this survey spent little or no time practicing reading or reading for pleasure. Question four of the survey pertained to decoding unfamiliar words. Most of the students, when encountering a word they did not know, indicated that they try to figure out word meaning by using context clues or the words around the unfamiliar word. Roughly 35% ask someone for help, and 15% skip over the word entirely. Only 9% of the students would use a dictionary to look for word meaning. This is of special importance because of the lack of the ability to relate prior knowledge and use independent reading and thinking skills demonstrated in these targeted classes. Question six yielded some unsettling results. When asked how often they read with other people in their homes, over 40% said *Never*. Thirty-seven percent said they read several times a week with someone in their home, and only 21% make it a daily or frequent habit. Students at these sites have not had the opportunity to observe and hear adult readers, nor have they participated in the interaction that comes with reading with an adult partner. Both lack of practice and discussion may have contributed to the low level of comprehension for this group. Question seven dealt with remembering and retelling stories. Sixty-one percent of the targeted students were *Sometimes* able to retell the story. Eleven percent said they could *Always* retell a story, and less than 5% said *Never*. Survey results would indicate that students need more practice in discussing and retelling the material they have read. In question ten, students were asked if writing about something they had read helped them remember it. Three percent said that it *Always* helped them remember what they had read when they wrote about it, while 30% said it *Occasionally*

helped them remember material. Sixty-two percent replied that *Sometimes* it helped them remember, and 5% said it *Never* helped to write about what they had read. This data, when coupled with the teacher anecdotal records, would seem to show that students have not had adequate practice in writing about what they have read, and might even be confused about the process of writing about reading.

In order to gain insight into the family attitudes towards reading and their involvement with their child's reading practices, parents at all sites were given a survey (Appendix A). The survey contained ten questions. However, for the purpose of this research, the results of the four most relevant questions are shown in Figure 8. These questions were selected because they most directly related to questions asked on both student surveys, and therefore provide comparable data.

Parent Survey

Question 4: How often do you read to your child?		Question 5: How often does your child read to you?		Question 6: How often do you ask your child about what he or she reads?		Question 10: What area in your child's reading needs the most improvement?	
Never	4%	Never	7%	Never	1%	Word attack skills	42%
Occasionally	68%	Occasionally	70%	Occasionally	60%	Vocabulary	15%
Several times per week	20%	Several times per week	20%	Several times per week	32%	Comprehension	33%
Daily	8%	Daily	3%	Daily	7%	Background Knowledge	10%

Figure 8: Parent survey results for the targeted classes during the first semester of the 2000-2001 school year.

Answers for questions four, five, and six were *Never*, *Occasionally*, *Several Times a Week*, and *Daily*. In question four, the parents were asked how often they read to their child. The majority of parents, 68%, indicated they read to their child *Occasionally*; 20% read to their child *Several Times a Week*, while only 8% read daily. Four percent of the parents *Never* read to their

child. When asked how often their child reads to them in question five, 70% responded *Occasionally*; 20% said *Several Times a Week*; 3% listen to their child read *Daily*, and 7% *Never* listen to their child read. Likewise, when asked how often they ask their child about what he or she has read, parents replied *Occasionally* (60%), *Several Times a Week* (32%), *Daily* (7%), and *Never* (1%). This data would support the student survey responses, and reinforce the teacher researchers' belief that students have not spent enough time reading with an adult model. Research has shown that discussion and interaction about reading material, whether text or strictly for pleasure, would appear to be crucial to both recall and comprehension.

In question ten of the survey, parents were asked which area in their child's reading needed the most improvement. The majority of the parents, 42%, felt the most improvement was needed in the area of word attack skills. Thirty-three percent felt their child was weak in the area of reading comprehension, and 15% felt their child had inadequate vocabulary knowledge. Finally, 10% of the parents felt their child was lacking in the area of background knowledge.

Parent surveys indicated that students need practice reading to others, listening to others read, and discussing and reacting to their own reading. The parent surveys mirrored the responses given on the student surveys, and supported the anecdotal records kept at each site. This data reaffirmed the teacher researchers' belief that there is a great need to improve reading comprehension, word attack skills, and vocabulary. Additionally, surveys support the need to enhance student background knowledge.

The data from all four measuring tools led teacher researchers to conclude that a reading comprehension intervention involving time spent practicing reading, interaction with peers and teachers, and modeling of reading would be beneficial at all sites. Additionally, activities involving cooperative learning and stimulation of background knowledge would aid in

developing student comprehension skills. A program guiding students to improve their own skills and to use those skills across the curriculum would help develop reading comprehension abilities in the intervention participants. These reading comprehension skills could be of help to students throughout their educational career and throughout their life. After all, "…there is nothing special about reading, apart from everything that reading enables us to do" (Smith, p.1).

Probable Causes

The literature suggests several different causes for students' lack of reading comprehension. Research shows that one-third of students entering school lack the appropriate skills necessary to become efficient readers. Because of the ever widening divergence of backgrounds stemming from income levels, background experiences, language barriers, and dysfunctional families, teachers are unable to be as effective in meeting the needs of all students (Cunningham & Allingtion, 1999; Mathes et al., 1997).

Baumann and Duffy's study (as cited in Duffy-Hester, 1999) stated, "A recent national survey of elementary school teachers revealed that many were unsure of how to meet the needs of readers who struggle. Many teachers stated that teaching struggling readers was one of their greatest challenges" (p. 481). This could be attributed to inadequate training at the college level as well as insufficient inservice training (Dowhower, 1999).

Although teachers identify comprehension as a major goal in reading instruction, and believe to be addressing this issue, studies find that comprehension instruction is inadequate. As cited in Pressley and Wharton-McDonald (1997), studies in the 1970's by Durkin and in the 1990's by Pressley, et al., indicated that while students were expected to apply strategies and

were provided with ample time for independent reading, there was no direct instruction observed.

Studies show that many teachers spend insufficient time teaching specific reading comprehension strategies in the classroom. Unfortunately, the majority of time is spent on tools designed to assess comprehension (Lloyd, '95-'96 & Fielding & Pearson, 1994). One commonly used pattern of instruction, developed by Dillon (1988) and Mehan (1979), is Initiate, Respond, Evaluate (IRE). In this pattern, "the teacher initiates a series of questions, students respond, and the teacher evaluates their responses" (Beck et al., 1998, p. 68). Consequently, using this strategy encourages students "to recall what they have read rather than in supporting students as they build an understanding of what they are reading" (p. 68).

Development of an adequate vocabulary is essential to becoming an effective reader. According to the literature, students who are struggling readers have limited vocabularies. As students encounter new words, they become easily frustrated and these vocabulary limitations have a negative influence on their reading comprehension (Roberts, 1999). This frustration tends to lead to low self-esteem and lack of confidence in reading (Knuth & Jones, 1991).

According to Oakhill and Patel's study (as cited in Swanson & De La Paz, 1998), students who are struggling readers fail to make inferences from their reading material and fail to make connections between ideas in the text. While these readers are able to decode words accurately, they do not focus on the meaning of the text, nor do they draw upon prior knowledge in order to establish clear meaning. Furthermore, Beck and McKeown (1999) contend that many readers exhibit little engagement with reading materials. They state, "It is as if the words roll by with little more than their outward forms registering. Attempts at grappling with the words and their underlying ideas to build meaning may be feeble" (p. 206). Inexperienced readers often do

not monitor their understanding of what is read or utilize strategies to maintain focus in their reading.

According to Christen and Murphy (as cited in Smith, 1997), students must integrate new information with prior knowledge in order to establish ownership of meaning. Children who have inadequate early stimulation and lack a variety of experiences and interaction with their environment tend to be deficient in the background knowledge necessary to be successful in reading. Additional research suggests students are entering school with an insufficient knowledge base needed "to understand and evaluate the text message" (Jitendra, 1996, p. 174).

Often times the problem is that while the student has the appropriate background knowledge and experiences, the text does not provide enough clues for the reader to draw upon in order to establish clear meaning of the material (Fuentes, 1998). Additionally, "texts are often not well written. They assume background information that the students do not have; they give inadequate explanations of the information they present; they fail to show the connections from a cause to an event and from an event to a consequence" (Beck, et al., 1998, p. 66). A large percentage of teachers primarily rely on texts as a source of their reading material, even though most students are unable to read them. "Current estimates from the National Assessment of Educational Progress tell us that 40 percent of our seventh graders cannot read their texts with sufficient ease and fluency to comprehend the material. That figure jumps to an alarmingly high 60 percent by twelfth grade" (Carbo, 1992, p. 189-190). Indeed, Nagy, Herman, and Anderson (as cited in Buikema & Graves, 1993) state that intermediate students "may encounter 15 to 55 unknown words in a typical 1,000 word text" (p. 450).

Daily, American children "spend 3-5 hours" (p. 190) watching television while only spending a few minutes actively reading. "That statistic has serious educational implications

since most people become proficient readers by reading for substantial periods over time" (Carbo, 1992, p. 190). Studies have shown that students also lack appropriate independent reading time at school. According to the 1985 report by Anderson et al. (as cited in Fielding & Pearson, 1994), a mere 7-15 minutes are actually spent per day reading texts in the elementary grades.

As Marlon Davis explains in his article "Vocabulary Instruction: A New Approach to Learning:"

> Many children in today's education system are suffering academically due to the fact that they have not learned how to adequately read. Moreover, if students are experiencing difficulty with reading, then it is safe to say that they are also experiencing difficulty with reading comprehension as well. Reading is the fundamental skill that precedes all other forms of learning and is the most important "building block" to learning new information (2000, p. 1).

CHAPTER 3

THE SOLUTION STRATEGY

Literature Review

Literature suggests there are a variety of solutions for improving reading comprehension in the elementary classroom. These solutions include activating prior knowledge, developing vocabulary, building reading strategies, organizing story elements, and developing reading fluency.

Successful comprehension depends upon understanding the text. Students must be able to internalize new information and link it to prior knowledge in order to construct meaning from what they read. "Reading is not a subject matter in the same way that mathematics and history are, but is a process applied to the universe of subject matters. Reading is not content free; readers read about something, and the content of that something makes a big difference in how well it is understood" (Beck & McKeown, 1999, p. 197). According to Glazer (2000),

> Children need to have information in their memories that relates in some way to the new ideas they're expected to learn. They need to actively engage in making those connections so they can make predictions about new information. They select clues about the new text that make sense based on their prior knowledge. They (1) scan, (2) make pictures in their minds, (3) ask themselves questions, (4) make predictions about what the text might be about, based on clues, (5) develop short summaries of the information, and (6) come to conclusions based on available data (p. 102).

The quality of background knowledge becomes an essential key to comprehension, as it affects how the reader's attention is focused, and how new text is interpreted, internalized, and retrieved

from memory (Beck & McKeown, 1999). Additionally, according to Willis (as cited in Vogt, 2000), when students can personally relate to their learning, more effort is given to their schoolwork. Kameenui and Simmons state (as cited in Jitendra, 1996):

> Many instructionally naïve learners simply do not possess the necessary background knowledge to make requisite inferences and connections. Creating a balance between the amount of prior knowledge required and the amount of explicit information provided in the text should be considered within the framework of instructional design (p. 175).

Christen and Murphy (1991) have found:

> Research has been conducted to determine the value of providing activities or strategies to assist in providing students with ways to activate their prior knowledge base. Studies looked at three possibilities: (1) building readers' background knowledge; (2) activating readers' existing background knowledge and attention focusing BEFORE reading; and (3) guiding readers DURING reading and providing review AFTER reading (p. 1).

Additionally, Christen and Murphy state:

> It appears that when readers lack the prior knowledge necessary to read, three major instructional interventions need to be considered: (1) teach vocabulary as a prereading step; (2) provide experiences; and (3) introduce a conceptual framework that will enable students to build appropriate background for themselves (p. 1).

Literate societies dictate that adequate word knowledge is necessary in order for students to develop successful reading comprehension skills (Smith, 1997). In their studies, Beck and McKeown state that there is a "strong, well-documented relationship between vocabulary and school achievement in general and reading proficiency in particular" (p. 203). They later add, "Acquiring vocabulary from context seems to be built on multiple encounters with a word and

large numbers of opportunities to develop a sense of how to use context to take advantage of the information it offers" (1999, p. 204). In order to comprehend reading materials effectively, students need to have a wide variety of vocabulary words in their long-term memories. These words then become sight words (Roberts, 1999). In his research, Qian concludes that simply having a large vocabulary base is not sufficient; students must also have a deep knowledge of each word (1999). Furthermore, studies show that vocabulary knowledge is organized in groups of related words. The goal of the instructor, then, is to help students build strong, connected understandings (Beck & McKeown, 1999, p. 204). Discussing meanings, special features, and origins of words can all help students internalize the words. Drawing and visualizing words, discussing words with their peers, and relating to them personally can also promote the retention of vocabulary words into students' long-term memories (Roberts, 1999). Language arts and reading most readily lend themselves to vocabulary instruction; however, this instruction is essential in all areas of the curriculum where students encounter new words and ideas (Smith, 1997).

Reading comprehension strategies need to be taught in order to develop students' ability to read and understand text independently (Gambrell & Jawitz, 1993). Direct teaching and explanation of reading strategies is very important to comprehension, but only when coupled with teacher modeling, extensive student practice, and use of the strategies. Furthermore, students need to be taught the appropriate time and place to apply these strategies in order for them to be the most effective (Roberts, 1999).

In their research, Pressley and Wharton-McDonald cite several studies on the effects of direct instruction. Their conclusions show that direct instruction can accelerate reading comprehension in grades two to high school. In one study, they state that students who received

direct instruction internalized more information from daily lessons (1997). In their research concerning comprehension difficulties in science reading, Craig and Yore also mention the importance of "embedding comprehension instruction to content area lessons." They add that the teacher needs to first assess students' knowledge of strategy usage before they can know how to most effectively teach comprehension (1996, p. 227).

Roberts (1999) contends that in order for students to be able to transfer these newly learned reading strategies to other content areas, teachers need to consistently reinforce students who are attempting to utilize these strategies. Not only will this provide motivation for those students to keep using the strategies on their own, but it will also "increase the students' expectations for learning to comprehend materials" (p. 2).

In addition, Fielding and Pearson state that there are ways to teach comprehension along with text information. When comprehension strategies are "embedded in discussions about texts", learning can be enhanced. They discuss Brown's theory of situated cognition, which is similar to direct instruction. The difference between the two is that in situated cognition, the focus is on learning information from text. The comprehension strategy is a "secondary outcome of repeated engagement in such discussions about many different texts." The idea behind this theory is that students will "internalize effective comprehension strategies through repeated situations in which they read and discuss whole texts with a teacher and peers" (1994, p. 66-67).

Teachers who teach strategies while students are engaged in reading find that students make a connection between the skills and can apply them to all content areas (Duffy-Hester, 1999). Collins (1994) states, "Research indicates that readers use many strategies, but that a distinction exists between good readers and poor readers. Good readers tend to use the most effective strategy that leads to a thorough processing of the text" (p. 2).

Universally, there are five comprehension techniques which can be used across the content areas and which speak to a variety of reading levels and student needs. Evidence shows these techniques "…can transfer to independent reading" (Dowhower, 1999, p. 677). Students can acquire the skills of prediction and validation through directed-reading-thinking activities, can gain insight into text meaning by linking background knowledge to narrative stories through experienced text relationships, can understand and relate important text ideas through the use of visual structures, can understand a story through its grammar and structure, and can identify what they know (K), what they want to know (W), and what they have learned (L) by using a K-W-L chart.

Experts agree that while the acquisition of these strategies is important, the most essential activity in which students need to be engaged is reading itself (CTAP, 2000). The task of the teacher is to make certain that ample time is available for reading of text and that students are actively engaged in that reading. Current research concludes that all readers can benefit from actual time reading, not only able readers, as once was believed. Fielding and Pearson suggest that " students should have more time to read than the combined total allocated for learning about reading and talking or writing about what has been read (Fielding & Pearson, 1994, p. 63)." They believe that comprehension skills can be improved if students are given a choice of what to read, if students are reading books that are appropriate for their reading level, if students are allowed to read selections multiple times, and if students are allowed to discuss reading with their teacher and peers (Fielding & Pearson, 1994).

It is important for students to identify and understand story elements, including setting, characters, problem, and resolution. Teachers first decide which story elements are most important and then model how to find them in the text and record them on paper or a graphic

organizer. This is followed by independent practice (Swanson & De La Paz, 1998). In discussing mathematical texts, Fuentes argues, "We need to teach our students how to process new information in such a way that it becomes stored in an organized and accessible fashion in long-term memory." He further states that information organized with graphic organizers or concept maps increases comprehension. "Current researchers suggest that the regular use of such strategies in the classroom is the best way to increase comprehension, retention, and use of information gained by reading" (1998, p. 82).

Cooperative Story Mapping is another method to increase comprehension. "Cooperative Story Mapping consists of reading the story, skimming it for grammar elements, mapping it in a cooperative group, and discussing it with the whole class" (Mathes, Fuchs, D., & Fuchs, L., 1997, p. 23). Students read the story, then are given time the following day to refamiliarize themselves with the story by skimming. Approximately fifteen to twenty minutes is given to the cooperative groups to identify and discuss the story elements. The group reaches consensus and records their answers on a story map (graphic organizer). The final step is a class-wide discussion led by the teacher. This provides students the opportunity "to share and extend their understanding of the story beyond their own group. It allows them to see that others have varying opinions and that different interpretations and perspectives may be supported by the same text" (Mathes, Fuchs, D., & Fuchs, L., 1997, p. 24). In addition, Rhodes and Shanklin state, "In recent years, educators have come to understand that comprehension is a mental process of constructing rather that extracting meaning from text; that comprehension is a personal understanding of text; and that comprehension, even when it takes place privately, is a social process" (1993).

Once children have learned to read, emphasis needs to be placed on fluency. Students

must have skills and tools to repair comprehension breakdowns and still maintain knowledge and understanding of what they have read. Students need to continue to hear fluent readers, need to read both silently and aloud, and need to participate in choral readings, plays, and dramatic interpretations (Delaware County Community College, 2000).

Carbo (1992) contends that the use of recorded books enables students to make quick gains in reading fluency and speech patterns. The books, however, should be high-interest and high-level in order to expedite reading gains. The books need to be recorded on very short tapes with natural expression using a slower reading pace so that the reader can follow along. This allows the reader to visually see and connect the print with the words on the tape. Reading fluency occurs after the student has listened to the passage several times. After the students' reading fluency has increased, and the gap between ability and the reading level of the textbooks used for instruction has narrowed, recordings of the textbook can be used to help struggling readers keep up with the rest of their classmates (Carbo, 1992).

PROJECT OBJECTIVES AND PROCESSES

As a result of increased instructional emphasis on reading comprehension in the content areas during the period from August 2000 to January 2001, the targeted classes in grades two, three, four, and five will increase their comprehension of reading material across the curriculum, as measured by teacher anecdotal records, pretests and posttests, parent surveys, and student surveys.

In order to accomplish the project objectives, the following processes are necessary:

1. Implementation of lessons that involve activating prior knowledge
2. Development of student vocabulary
3. Introduction and reinforcement of reading strategies
4. Definition and organization of story elements
5. Practice in reading fluently

Project Action Plan

Title: Improving Reading Comprehension in the Content Areas

The following action plan will be incorporated into the teacher researchers' classrooms using a combination of multiple intelligences, cooperative learning, meta-cognitive activities, teacher and student choices, and a positive atmosphere for learning.

ACTION PLAN FOR THE INTERVENTION

I. Week one: Baseline measurements will be taken

A. Parent survey (Appendix A)

B. Student survey (Appendix B and C)

C. Comprehension pre-testing (Appendix D, E, F, G, H)

D. Teacher anecdotal records

II. Weeks Two through Six: Lessons that involve activating prior knowledge, developing vocabulary, and building reading strategies will be implemented in the classroom.

A. Activating prior knowledge

1. Teacher modeling
2. K-W-L charts
3. Whole class discussion
4. Cooperative group discussion

5. Brainstorming

B. Developing vocabulary

1. Dictionary skills
2. Matching worksheets
3. Class discussion
4. Find your partner (Students will have a vocabulary word card and will find the student with the matching definition card.)
5. Illustrate a word (Students will draw the meaning of the word.)

C. Building reading strategies

1. Reading strategy interactive bulletin board
2. Guided reading
3. Predicting
4. Meta-cognitive activities
5. Journals

III. Weeks Seven through Ten: Activities from weeks two through six will be continued and activities will be implemented which develop student ability to organize story elements.

A. Graphic organizers (Appendix J, K, L, M, N)

1. Teacher modeling
2. Whole group activity
3. Cooperative group activity
4. Independent activity

B. Response journals

C. Drama and role playing

D. Murals, drawings, pictures, and posters

E. Book jackets

IV. Weeks Eleven through Twelve: Activities from weeks two though ten will be continued, and the new interventions will focus on developing reading fluency.

A. Echo reading

B. Paired reading

C. Choral reading

D. Sustained silent reading

V. Weeks Thirteen though Fifteen: Reinforcement of the intervention will continue, and students will be asked to do many independent activities related to what they have learned.

VI. Week Sixteen: Tools to measure progress will be given to students.

A. Student surveys

B. Post testing

METHODS OF ASSESSMENT

In order to assess the affects of the intervention, the following four tools will be utilized: teacher anecdotal records, pretests and posttests, parent surveys, and student surveys. Teacher researchers will collect and analyze data from all students participating in the program.

CHAPTER 4

PROJECT RESULTS

Historical Description of the Intervention

The research project was designed to increase the reading comprehension skills of elementary students in grades two, three, four, and five. In order to accomplish this purpose, students participated in lessons that activated prior knowledge, developed vocabulary, and built reading strategies. In addition, organization of story elements and development of reading fluency was emphasized. Teachers at each of the five sites varied, integrated, and used grade-level appropriate activities involving multiple intelligences, cooperative learning, meta-cognition, student choice, and a positive atmosphere for learning.

Surveys were given to both students and parents during the second week of school. While the parent survey (Appendix A) was designed to gain further insight into the parents' perspective of their children's reading comprehension skills, the student survey (Appendices B and C) was given to determine the students' attitude towards their own reading. During the first week of the intervention, a pretest was also administered to the students to determine their reading comprehension ability. The tests given were as follows: "Reading for Comprehension Grades Two and Three" (Sites C and A), "SRA Inventory" (Site B), and teacher compilations from reading series published by both Heath and Silver Burdett & Ginn (Sites D and E). Sample pretests can be found in Appendices D, E, F, G, and H. Results were evaluated individually by site and grade level.

Initially, the intervention focused on activating prior knowledge. Teacher researchers first shared their prior knowledge, and this modeling prompted students to think and share in

both cooperative group discussions and whole class discussions. Often these responses were recorded using a K-W-L graphic organizer, which lists what students already know (K) about a topic, what they want to know (W), and what they have learned (L). This graphic organizer presented a focus and guide for reading assignments. Students revisited the chart after reading to make revisions and additions according to knowledge gained.

Teacher researchers also emphasized vocabulary development through the use of dictionary skills, matching worksheets, and class discussions. Students participated in activities designed to introduce and review vocabulary words. In the find your partner activity, each student was given a vocabulary word card, which had to be matched with the correct definition card held by another student. Students illustrated vocabulary words by drawing pictures and teaching the meaning to a cooperative group. Because of these activities, students were actively engaged in their own learning.

Additionally, various reading strategies were introduced and developed throughout the intervention. At each site, a bulletin board provided a framework for students to follow before, during, and after reading (Appendix I). Students were given extensive instruction and were provided with daily review of the strategies contained on the bulletin board. Further explanation of these strategies is as follows:

Before Reading

1. Think about the title.
2. Look at the pictures.
3. Think about what you already know about the topic.
4. Think about your purpose for reading.
5. Make predictions about the story.

During Reading

1. Ask yourself, "Does this make sense?"
2. Ask yourself, "Does this sound right?"
3. Confirm or correct predictions.
4. Reread when you don't understand a part of the book.
5. Focus on beginning sounds, "chunks" within words, and endings to figure out unknown words.
6. Read to the end of the sentence and go back to the unknown word to figure it out.

After Reading

1. Think about the author's message.
2. Think about how the text matched or didn't match predictions.
3. Think about how the text relates to real life.

The bulletin board was displayed throughout the intervention, which provided daily reinforcement for all reading assignments. Eventually, students were encouraged to use this bulletin board as a guide for independent reading to increase comprehension.

While continuing activities that activated prior knowledge, developed vocabulary, and built reading strategies, teacher researchers also focused on developing organization of story elements. At each site, varying story maps were used to graph the elements of the story. Samples of these organizers are in Appendices J, K, L, M, and N. Again, these activities were modeled in whole group discussion, utilized in cooperative group work, and used independently to increase comprehension of the stories. Character role-playing and drama activities were used to interpret story elements. Students also made murals, drawings, pictures, posters, and book jackets to illustrate the stories.

The last intervention focus was developing reading fluency. Teacher researchers used echo reading to increase fluency. In a typical echo reading activity, the teacher reads sentences or paragraphs from the text and the students echo, or repeat, the same passages from their copy of the text. Changing the length and type of the passages used varied this activity. Also, students were paired to read orally and were given time to read silently to themselves (Sustained Silent Reading). Fluency was reinforced through choral reading performances for classmates and other classes (Appendix O).

In order to determine overall reading comprehension levels at each site, the pretest was repeated as a posttest after the final week of intervention. The posttest was evaluated using the same criteria as the pretest, and the results were organized into graphs. The results of the posttest were compared to the scores of the pretest in order to evaluate intervention effectiveness. Following the posttest, the student survey was repeated to determine if student attitudes had changed during the intervention. This information was organized into graphs according to primary and intermediate levels.

Presentation and Analysis of Results

Site A

The twenty-one third grade students at Site A were given "Reading for Comprehension Grade Three" as a posttest (Appendix D) during the sixteenth week of the intervention. The results of both the pretest and posttest are shown in Figure 9.

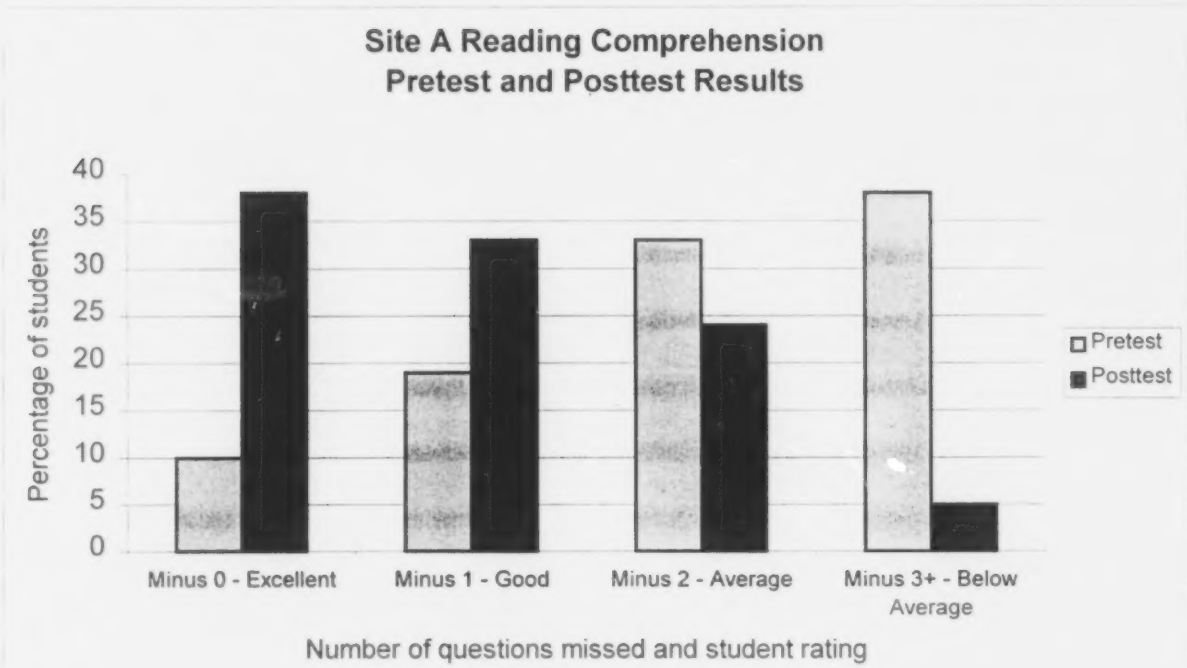


Figure 9: Comparison of Site A pretest and posttest results.

Figure 9 shows that reading comprehension levels in this classroom improved. Of the students tested, 38% received an *Excellent* score, whereas initially this percentage was only 10%. While 19% received a *Good* score before the intervention, this increased to 33% after sixteen weeks. It is important to note that over half of the students tested improved their reading comprehension skills to fall into the *Good* or *Excellent* category. On the posttest, 24% received an *Average* score, whereas on the pretest 33% received this score. In addition, only one student (5%) received a *Below Average* score on the posttest. This is a dramatic improvement from the pretest in which 8 students (38%) obtained a *Below Average* score. The test score improvement can partially be attributed to natural maturation during the school year and identical pretest and posttest instruments. Due to the dramatic increase of test results at all levels, it is the belief of

the teacher researcher at this site that the intervention was an aid to improving reading comprehension.

The teacher researcher at Site A noted that vocabulary intervention was a meaningful strategy to help the students internalize the meaning of words. Although some words were looked up in a dictionary, this was not as effective as discussing each word as a group. During these discussions, the students related the vocabulary words to their own personal experiences, which activated their prior knowledge.

Stimulating background knowledge was another effective intervention technique that was used as a pre-reading strategy. During whole group discussions, students at this site were asked to share what they already knew about a topic. From this brainstorming, they asked questions and made predictions about their reading. According to teacher anecdotal records, this was demonstrated when students were asked to read a story about cacti. The students were asked, "What do you think this story is about?" After all responses were accepted, they were asked, "What do you know about a cactus?" Many of the students shared personal experiences about seeing a real cactus, giving everyone in the class some background knowledge.

A final important key in the intervention at Site A was using a variety of techniques for reading a story. During a unit of study, the students were exposed to a story three times. Initially, students listened to the story on tape as they followed along in their books. They were also given the opportunity to silently read the story or buddy read with a partner. Finally, they read the story orally through a variety of methods. These repeated readings built student confidence in their own ability to pronounce the words, read fluently, and comprehend the text.

Site B

At the end of the sixteen-week intervention, the twenty-seven fourth grade students at Site B were given the "SRA Inventory" as a posttest. The results of the pretest and posttest (Appendix E) are shown in Figure 10.

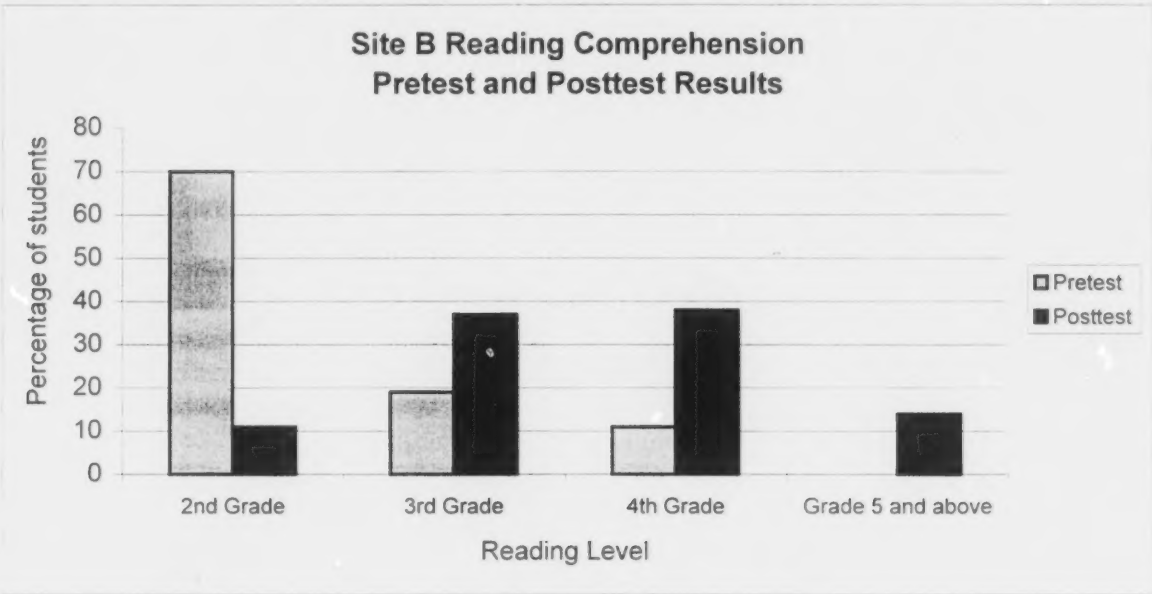


Figure 10: Comparison of Site B pretest and posttest results.

As Figure 10 shows, reading comprehension levels in this classroom increased dramatically. Initially, 70% of the students tested scored at the second grade level. On the posttest, that number was only 11%, showing that 59% of the students at this level improved. While 19% of the students tested were at the third grade level at the beginning of the program, 37% scored at grade three after the intervention. As noted before, 11% of the students scored at the fourth grade level on the pretest, and no students scored above that level. However, on the posttest, 38% of the students achieved fourth grade level, and 14% scored above the fourth grade level. This improvement in test scores can be partially attributed to the natural maturation that

occurs during a school year. However, because "SRA Inventory" test scores increased at all levels, including 14% scoring above grade level, the teacher researcher concluded that the intervention was an aid to improving reading comprehension at this site.

At the conclusion of the intervention, it was noted by the teacher researcher that modeling had been an essential key to success. The most effective technique for this was the teacher modeled an activity, the teacher did an activity with the students, and then the students did the activity independently. This seemed to provide enough reinforcement for the students to understand and feel comfortable working on their own. It was also important that activities were employed across the curriculum so that students were able to see the value of the strategies in many subject areas.

Another important activity in this intervention proved to be relating prior knowledge to new information. Once students became adept at brainstorming, they were able to improve both their questioning skills and their ability to write about their reading. For example, teacher anecdotal records noted that a particularly rewarding session of brainstorming about penguins simultaneously yielded a list of 14 questions that students still wanted answered in their reading.

The teacher researcher at this site found that vocabulary acquisition by means other than writing the definitions from a glossary or dictionary yielded greater student retention of the information. Students especially responded to activities that allowed them to be up and moving around, such as find your partner, in which vocabulary words were matched with their definitions. An activity that proved to be unsuccessful at this site was picture definitions. Students struggled when trying to draw what a word meant, and likewise were not good at gleaning the definitions from pictures classmates had made.

The final key in the intervention at Site B was organization. The reading strategies bulletin board (Appendix I) and graphic organizers (Appendix K) gave valuable visual support to students' reading. This, in turn, helped them sort their thoughts and ideas for writing about their reading. Anecdotal records at the end of the intervention show that students improved greatly in their ability to read and then write about their reading.

Site C

The fifteen second graders at Site C were given "Reading for Comprehension Grade Two" as a posttest (Appendix F) during the sixteenth week of intervention. The results of the pretest and posttest are shown in Figure 11.

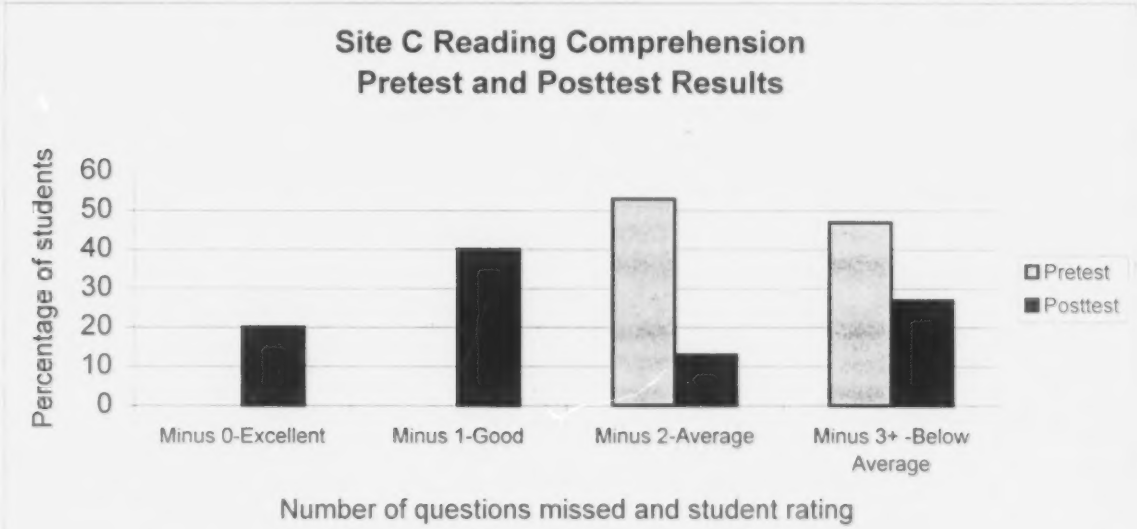


Figure 11: Comparison of Site C pretest and posttest results.

A comparison of the pretest and posttest in Figure 11 for Site C shows a meaningful improvement in reading comprehension. At the beginning of the intervention, almost half of the

class, 47%, scored *Below Average* on the pretest. On the posttest, 27% of the class scored *Below Average*. Fifty-three percent of the class scored in the *Average* range on the pretest. However, after the intervention period, that number dropped to 13%, indicating that 40% of the students in this range improved. It is interesting to note that while none of the students scored in the *Good* or *Excellent* range on the pretest, 40% of the students scored in the *Good* range, and 20% scored in the *Excellent* range after the sixteen week intervention period. While the maturation and development of students during this sixteen week intervention may be partially responsible for improved test scores, the fact that there were no students scoring in the *Good* or *Excellent* range on the pretest, while 60% scored in that range on the posttest, seems to indicate that the intervention contributed to increased reading comprehension at this site.

Teacher anecdotal records for Site C noted that while most of the students read fluently, they were unable to understand or retell what they had read. The bulletin board (Appendix I), displaying the strategies good readers follow before, during, and after reading, was essential to increased reading comprehension skills. The bulletin board was used on a daily basis by the teacher researcher and the students. At the beginning of the intervention period, the teacher researcher modeled the reading strategies on the bulletin board as stories were introduced and read. Meta-cognitive skills were modeled using the bulletin board as a guide so that the students could see and hear the thinking process and the connections that need to be made in order to make sense of the written word. As the intervention continued, students were encouraged to share their thinking processes before, during, and after reading. By the end of the sixteen weeks, most students were transferring this process independently to their own reading and were aware that reading meant interacting with and understanding the text, not just saying the words.

Another successful part of the intervention at this site was identifying and organizing story elements. Graphic organizers (Appendix L) proved to be very helpful for students to identify and record story settings, characters, problems, and solutions. It was noted by the teacher researcher that this knowledge not only enhanced story comprehension, but it also carried over into student writing skills. After modeling and practicing this technique, students began to understand story structure better and used the same graphic organizers as a prewriting activity to help them better organize their thoughts and stories.

Writing in literature response journals also proved to be an integral part of the intervention. After reading a selection, students were asked to respond in various ways by writing further questions they still had, summarizing important information, writing about character traits, and recording the author's purpose. Entries were illustrated and shared with the class. At the beginning of the intervention, students complained about not having any ideas and found it very difficult and tedious to write about what they had read. After several weeks, the students found this process easier, started to worry less about sentence length and spelling, and focused more on writing their ideas about the story. By the end of the sixteen weeks, most students agreed that writing about a story helped them to remember it better, and they even reminded the teacher researcher on several occasions that they had not yet had the chance to write in their journals.

Site D

Following the sixteen week intervention, the twenty-one fifth graders at Site D were given a comprehension assessment which was a teacher compilation from Heath. The results for the comprehension test, given as a pretest and posttest (Appendix G), are shown in Figure 12.

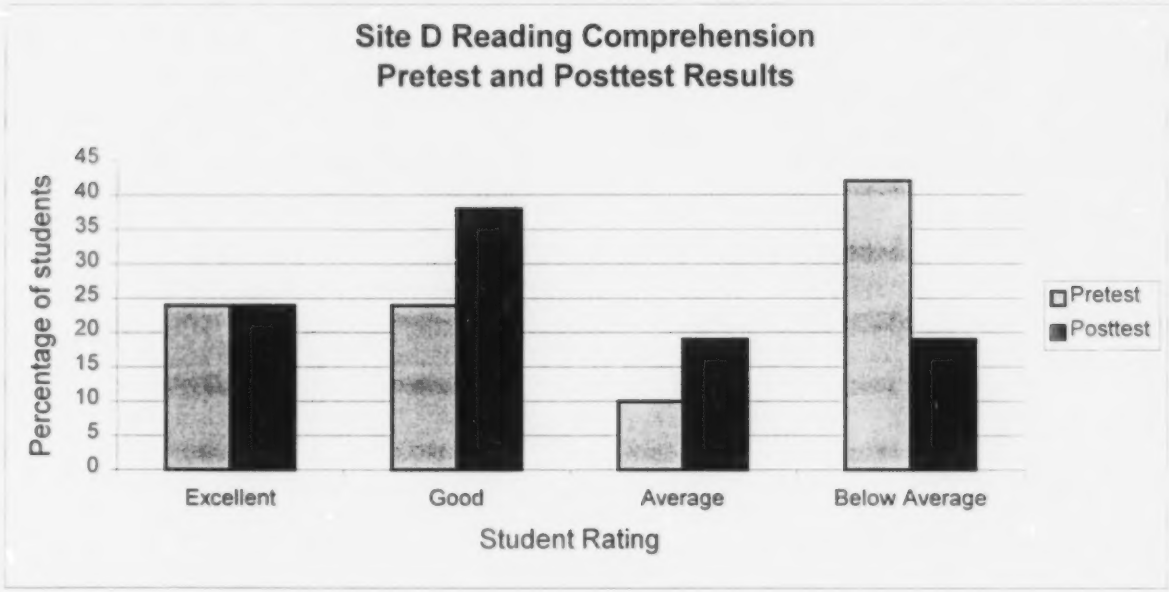


Figure 12: Comparison of Site D pretest and posttest results.

As can be seen in Figure 12, reading comprehension increased at this site. Forty-two percent of the students scored *Below Average* at the beginning of the school year. By the end of the intervention, that number decreased to 19%. The percentage of students who scored in the *Average* range grew from 10% to 19%. While 24% of the students scored in the *Good* range at the beginning of the year, 38% scored in that range at the end of the intervention. The percentage of students who earned an *Excellent* score stayed at 24%. This improvement could be partially attributed to the fact that the same test was given as a pretest and a posttest. Also, natural growth in the sixteen weeks could be a factor in the improvement. However, though readers in the *Excellent* range continued to be successful at comprehension, the number of struggling readers was cut in half by the end of the intervention. This shows that the intervention was successful at improving reading comprehension at this site.

Teacher anecdotal records throughout the intervention show that increased attention to vocabulary skills was an integral part of the intervention. Rather than simply looking the word up in the dictionary and recording the meaning, students thrived from the use of picture definitions. The teacher researcher found that students had a much deeper understanding of the word as they shared their pictures and gave their own explanation of the definition. As they shared with groups, students were often asked to clarify explanations and expand on their previous thoughts. The teacher researcher also found this one on one interaction with the students to be an excellent way of correcting misunderstandings about vocabulary, thereby increasing comprehension. This result was in direct contrast to the results at Site B and may be due to age level differences.

Another important activity in this intervention was the emphasis on background knowledge. Through teacher modeling, class discussion, and graphic organizers, students became more involved in the lesson. They were engaged as they shared what they knew about a topic and listened to the experiences of their peers. Through this sharing of information, students were better able to transfer information.

Finally, students benefited from the time provided for independent reading and the flexibility allowed for selecting their own reading material. Teacher anecdotal records showed that the majority of students became more involved in their own learning, often requested time to read, and developed a better attitude towards reading. Students became more willing to read new genres of books and were more apt to share their reading with their classmates.

Site E

During the sixteenth week of the intervention, the twenty-one fourth grade students at Site E were given a posttest identical to the pretest that was a teacher compilation from Silver

Burdett & Ginn (Appendix H) to evaluate reading comprehension. The results are shown in Figure 13.

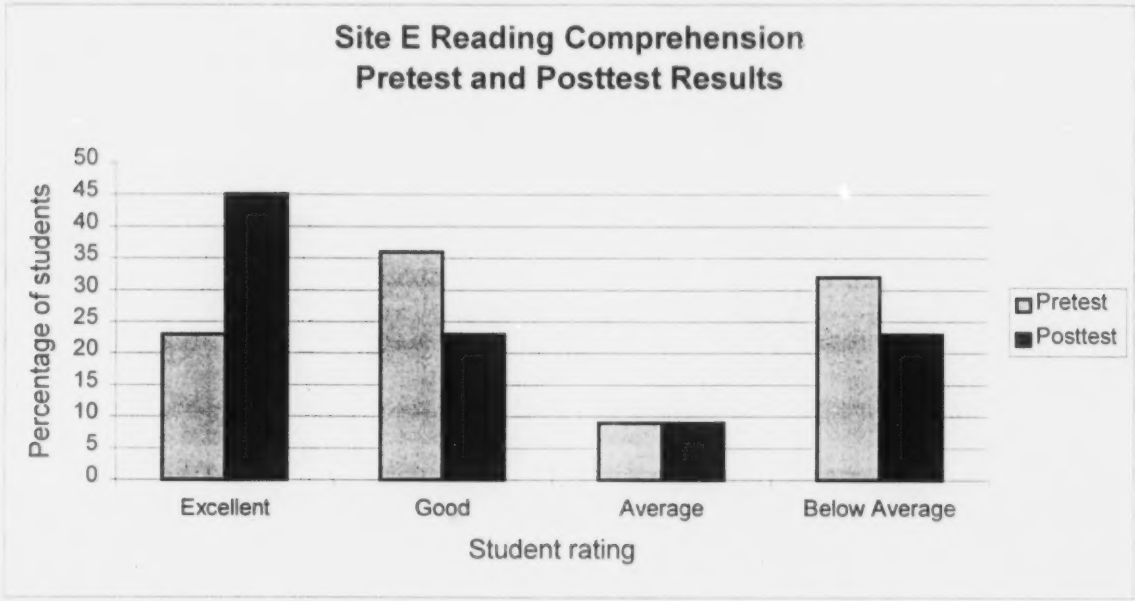


Figure 13: Comparison of Site E pretest and posttest results.

As Figure 13 shows, while 32% of the students scored *Below Average* on the pretest, only 23% scored *Below Average* on the posttest. The percentage of students in the *Average* level was 9% on both the pretest and the posttest. Initially, 36% scored *Good* and 23% scored in the *Excellent* range. On the posttest, improvement was shown in that 23% were at the *Good* level and 45% were at the *Excellent* level. Clearly, many of the students improved their reading comprehension skills throughout the intervention. This improvement could be due in part to the natural maturation that occurs during a school year or to identical pretest and posttest instruments.

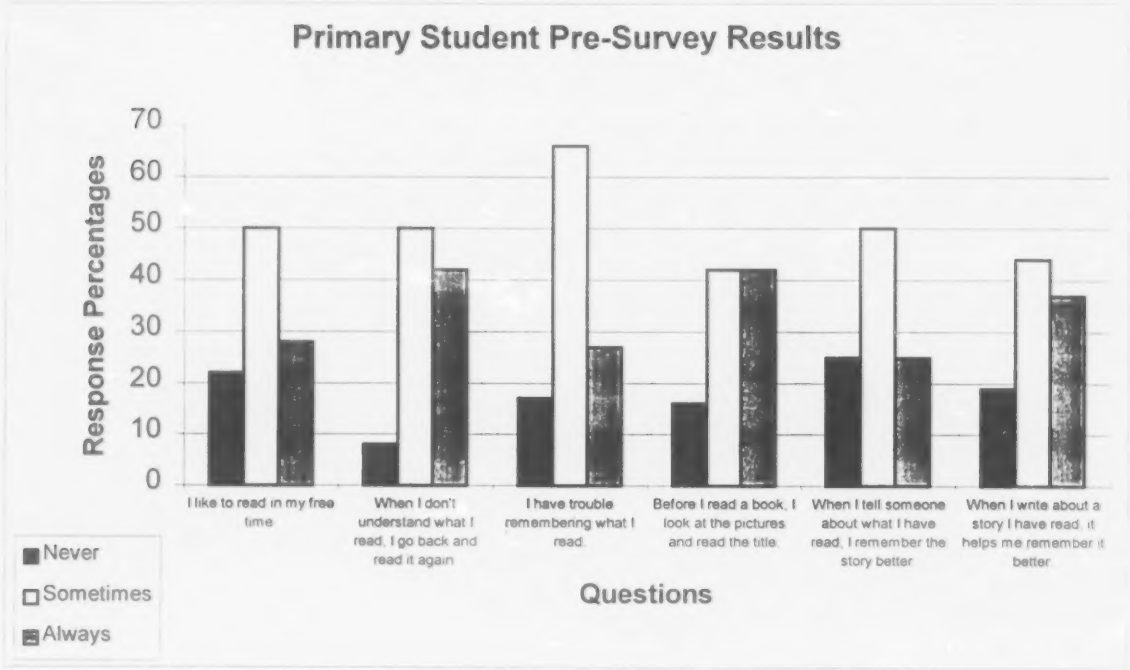
A successful intervention activity used with this class was teaching the students how to use reading strategies. These strategies were used across the curriculum and included guided

reading, predicting, brainstorming, and referring to the special bulletin board (Appendix I) on reading comprehension. The class often used prediction as a reading strategy when they read a novel as a group. The students used prior knowledge, and later used information learned from the story, to orally discuss their predictions and record them in reading journals. As the class read successive chapters, they would discuss the accuracy of their predictions. Students also used this strategy to ask questions about their reading.

Another intervention activity was helping the students develop their vocabulary. Vocabulary was practiced through the use of various activities, such as find your partner, matching worksheets, dictionary skills, and class discussions. Acquisition of new vocabulary words had a direct impact on reading comprehension as students were better able to apply new vocabulary knowledge across the curriculum.

Graphic organizers were also utilized as an intervention at this site. Charts such as story maps (Appendix N), Venn diagrams, T-charts, and flow diagrams helped the students to visually organize their thoughts, see patterns, and develop a deeper understanding of what they were reading. This activity was a great aid in improving reading comprehension.

The final data collection piece was used to compare students' current attitudes about their reading comprehension skills with those prior to the intervention. The primary survey (Appendix B) and intermediate survey (Appendix C) were identical to the pre-surveys. The results of the primary survey are shown in Figure 14 and the results of the intermediate survey are shown in Table 15.


Primary Student Pre-Survey Results
Response Percentages
70
60
50
40
30
20
10
0
I like to read in my free time
When I don't understand what I read, I go back and read it again
I have trouble remembering what I read.
Before I read a book, I look at the pictures and read the title.
When I tell someone about what I have read, I remember the story better
When I write about a story I have read, it helps me remember it better
Never
Sometimes
Always
Questions

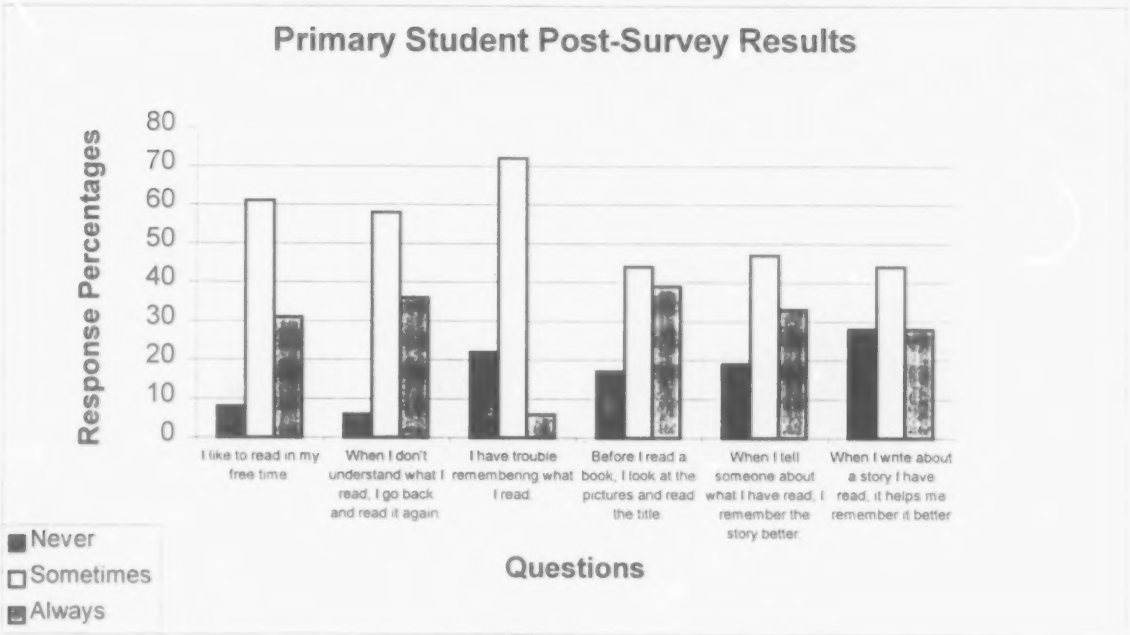

Primary Student Post-Survey Results
Response Percentages
80
70
60
50
40
30
20
10
0
I like to read in my free time
When I don't understand what I read, I go back and read it again
I have trouble remembering what I read.
Before I read a book, I look at the pictures and read the title.
When I tell someone about what I have read, I remember the story better
When I write about a story I have read, it helps me remember it better
Never
Sometimes
Always
Questions

Figure 14: Comparison of Primary pre-survey and post-survey results.

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The primary survey consisted of ten questions. However, the teacher researchers felt that questions three, five, six, eight, nine, and ten were most directly related to teacher anecdotal records. In question three of the primary survey, more students indicated that they read in their free time. Free time for the purposes of this survey consisted of time outside of school. While 22% of the students indicated that they *Never* read during their free time before the intervention, this number dropped to 8% after the intervention. In question six, the percentage of students indicating that they *Always* had trouble remembering what they read went from 17% in the pre-survey to 6% in the post-survey results. The teacher researchers at the primary level believe that because the students are reading more in their free time coupled with internalizing the intervention strategies, their perceptions toward reading comprehension had improved. The results of the remaining survey questions showed little change. Teacher researchers felt that this could be due to the difficulty of differentiating between the answer choices of *Always*, *Sometimes*, and *Never*, and due to the upcoming school holiday.

The intermediate survey consisted of ten questions. However, the teacher researchers felt that questions one, four, six, seven, and ten most directly related to teacher anecdotal records.

Intermediate Student Pre-Survey Results

Question 1: How much free time do you spend reading each day?	Question 4: When you come to a word you don't know, what do you do most often?	Question 6: How often do you read with other people in your home?	Question 7: When you finish reading a story, are you able to retell it in your own words?	Question 10: Does writing about something you've read help you remember it?
0-30 min. 63%	Skip it 15%	Never 42%	Never 4%	Never 5%
31-60 min. 31%	Use words around it 41%	Once a week 37%	Sometimes 61%	Sometimes 62%
61-90 min. 3%	Look it up 9%	Several times a week 14%	Often 24%	Often 30%
91-120 min 3%	Ask someone 35%	Daily 7%	Always 11%	Always 3%

Intermediate Student Post-Survey Results

Question 1: How much free time do you spend reading each day?	Question 4: When you come to a word you don't know, what do you do most often?	Question 6: How often do you read with other people in your home?	Question 7: When you finish reading a story, are you able to retell it in your own words?	Question 10: Does writing about something you've read help you remember it?
0-30 min. 52%	Skip it 24%	Never 44%	Never 7%	Never 14%
31-60 min. 38%	Use words around it 39%	Once a week 39%	Sometimes 49%	Sometimes 53%
61-90 min. 9%	Look it up 7%	Several times a week 12%	Often 29%	Often 23%
91-120 min 1%	Ask someone 30%	Daily 5%	Always 15%	Always 10%

Table 15: Comparison of Intermediate pre-survey and post-survey results.

In the intermediate post-survey, there were no results that were greatly changed. However, there was a slight increase in free time spent reading, ability to retell a story, and the degree to which writing about a story helped students to remember it. Students indicated in the post-survey that they spent less time reading with someone in their home, and more students said they would just skip a word if they did not know the meaning. Teacher researchers felt that these results were affected by students not taking the time to carefully answer each question, as well as the approaching holiday season.

Conclusions and Recommendations

Teacher researchers at all five sites note that there are several common elements that are keys to the success of the intervention. First, it is essential in each classroom that the teacher models the activities and the reading strategies that are introduced. Students need this visual cue in order to attempt the activities both in groups and on their own. Modeling gives students

examples of what to do and thus boosts student confidence in attempting the activities. The interactive bulletin board is an integral facet of the modeling process.

Also of importance at each site is the activation of background knowledge. Brainstorming gives students a chance to share what they already know, and students who do not have as much background knowledge benefit from information that they did not previously know. When the students are actively engaged in learning, they are better able to ask questions and make predictions about their reading.

Knowledge of vocabulary is a third key to the reading comprehension success shared by the five sites in this intervention. Writing definitions from a glossary or dictionary is much less effective than the meta-cognitive activities in which students participate. These activities assist students in acquiring ownership of the words, and thus they are able to apply them more accurately across the curriculum.

A final component noted by each teacher researcher is the use of graphic organizers. Students use these tools to sort and make sense of the main story elements and ideas in their reading. The organization of information helps students make predictions, draw conclusions, and write about what they read.

The sixteen-week intervention brought to each teacher researcher a greater awareness of how to help students with reading comprehension across the curriculum. The main elements focused upon during each phase of the program revealed that it is essential that students have some key building blocks in place in order to have the foundation necessary to read and understand the material they encounter as they progress through school. Because of this and because the posttesting showed that this intervention helped improve reading comprehension at all five sites, teacher researchers will incorporate into their teaching and continue to use

modeling, activation of background knowledge, vocabulary development, and graphic organizers as regular parts of their classroom programs.

Although this intervention proved to be a successful means of improving student comprehension, some aspects of the action plan were more effective than others. Part of this was due to fact that participating students were at four different grade levels and were doing the same types of interventions. Primary students were not ready to work with activities related to dictionary skills, nor could they independently work with vocabulary activities. Students at the intermediate level did not respond well to echo reading, and the teacher researchers felt that the students already had a strong working knowledge of story elements.

Future researchers doing an intervention of this nature need to spend time the first weeks of school observing and making anecdotal records about the strengths and weaknesses of the students involved in the project before planning any type of intervention activity. Student and parent surveys should be used as a data collection tool, and not necessarily used as a measure of the success of the intervention. Additionally, special consideration needs to be given if intervention participants are at multiple grade levels. Finally, future researchers need to take special care to ensure activities are integrated across the curriculum in order to maximize student internalization of skills.

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APPENDICES

Appendix A
Parent Survey

Parent Survey

Directions: Please circle the answer which best suits you and your child.

1. Are there age appropriate reading materials in your home?
   a) yes
   b) no

2. Does your child enjoy reading?
   a) never
   b) sometimes
   c) most of the time
   d) always

3. How often does your child read at home?
   a) never
   b) occasionally
   c) several times a week
   c) daily

4. How often do you read to your child?
   a) never
   b) occasionally
   c) several times a week
   d) daily

5. How often does your child read to you?
   a) never
   b) occasionally
   c) several times a week
   d) daily

6. How often do you ask your child about what he/she reads?
   a) never
   b) occasionally
   c) several times a week
   d) daily

7. How often does your child come to you with questions about his/her reading material?
   a) never
   b) occasionally
   c) several times a week
   d) daily

8. Do other members of your family read for enjoyment?
   a) never
   b) occasionally
   c) several times a week
   d) daily

9. How would you rate your child's reading ability?
   a) below average
   b) average
   c) above average

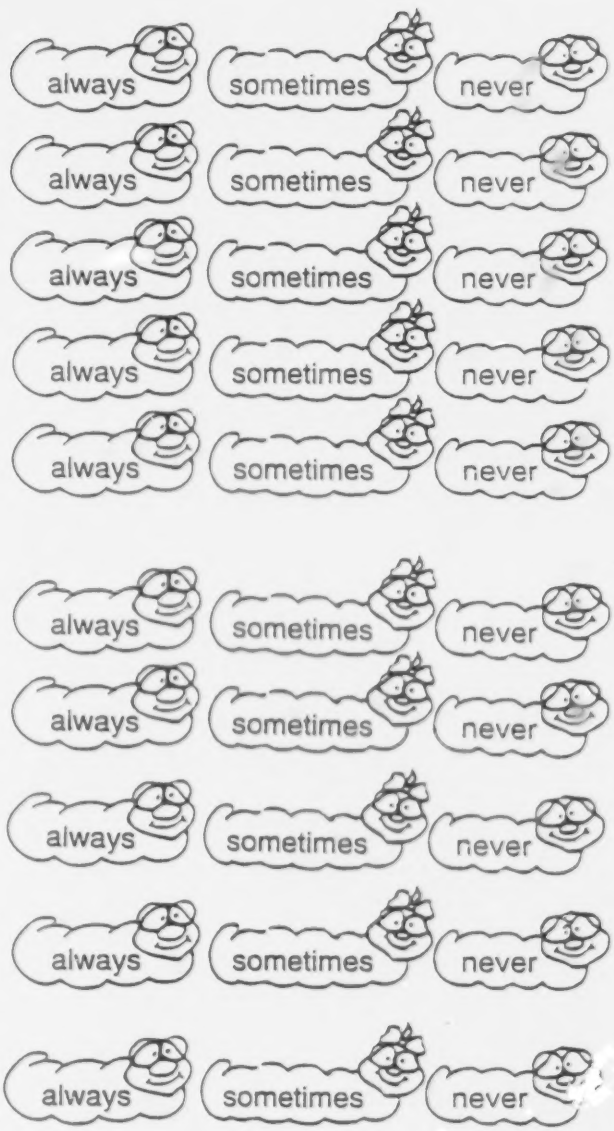
10. What area in your child's reading needs the most improvement?
    a) word attack skills (figuring out unknown words)
    b) vocabulary
    c) reading comprehension
    d) background knowledge

Appendix B
Primary Student Survey

Student Survey A

Read each sentence.
Color a bookworm to answer each one.

1. I enjoy reading by myself.
2. I enjoy reading to other people.
3. I like to read in my free time.
4. I learn new things when I read.
5. When I don't understand what I read, I go back and read it again.
6. I have trouble remembering what I read.
7. I'd rather read a book than watch TV.
8. Before I read a book, I look at the pictures and read the title.
9. When I tell someone about what I have read, I remember the story better.
10. When I write about a story I have read, it helps me remember it better.



Appendix C
Intermediate Survey

Student Survey B

Directions: Please circle the answer which best describes you.

1. How much free time do you spend reading each day?
   a. 0-30 minutes
   b. 31-60 minutes
   c. 61-90 minutes
   d. 91-120 minutes

2. What is your favorite kind of book to read?
   a. fiction
   b. fantasy
   c. adventure
   d. mystery
   e. nonfiction
   f. sport
   g. historical fiction
   h. biography

3. What kind of things do you like to read?
   a. books
   b. magazines
   c. comics
   d. computer information
   e. other

4. When you come to a word you don't know what do you most often do?
   a. skip it
   b. try to figure out the meaning from the words around it
   c. look it up in the dictionary
   d. ask someone what it means

5. What kind of reader are you?
   a. excellent
   b. good
   c. average
   d. below average

6. How often do you read with other people in your home?
   a. never
   b. once a week
   c. several times a week
   d. daily

7. When you finish reading a story, are you able to retell it in your own words?
   a. never
   b. sometimes
   c. often
   d. always

8. How often would you rather read a book than watch T.V.?
   a. never
   b. sometimes
   c. often
   d. always

9. How do you feel when asked to read aloud in front of the class?
   a. hate it
   b. dislike it
   c. doesn't matter
   d. love it

10. Does writing about something you've read help you remember it?
   a. never
   b. sometimes
   c. often
   d. always

Appendix D
Site A Pretest and Posttest

Does a giant redwood tree have giant roots?

1 Most trees have deep, wide roots. These roots feed the trees and hold them in the ground.

2 The redwood is the giant of trees. It can be as tall as a 25-story building. We would expect a redwood to have giant roots. But these huge trees grow on rocky ground. A redwood tree may have roots that are only 8 feet deep.

3 Why doesn't the tree fall over? First of all, redwood roots spread out. A single redwood tree may have roots that cover a space the size of a football field. Redwood trees also grow very close together. The roots of one tree are tangled with the roots of many others. Each set of roots helps to hold all the trees in the ground.

4 What happens when many redwood trees are cut down all at once? The roots of other redwood trees around them are hurt. After a while these trees die. The redwood forest gets less thick. The wind can blow down single trees. The redwood forest dies, tree by tree. Careful cutting and replanting can keep our redwood forests alive.

Mark the circle (○) beside the right answer.

1. Redwood trees _____.
   ○ have deep roots ○ have no roots ○ grow close together

2. Which word in paragraph 3 means wrapped around each other?
   ○ spread ○ tangled ○ set ○ grow

3. The story tells about the redwood trees' _____.
   ○ roots ○ color ○ leaves ○ seeds

4. Which paragraph tells how a redwood forest might die?
   ○ 1 ○ 2 ○ 3 ○ 4

5. CLOSE is to NEAR as one is to _____. Think how the first two words go together. Then mark the word that goes with one in the same way.
   ○ other ○ many ○ most ○ single

6. Roots feed trees and hold them in the ground. ○ True ○ False
   Redwood trees are never blown down. ○ True ○ False
   Redwood trees grow on rocky ground. ○ True ○ False

7. Which word does not belong?
   ○ trees ○ forest ○ building ○ woods

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Appendix E
Site B Pretest and Posttest

Story A

Bees talk to each other by dancing. Instead of words, they use dance steps. When a bee finds a good supply of nectar for making honey, it comes back to tell the other bees. It tells them by dancing.

If the nectar is close to the beehive, the bee dances in a circle. If it is farther away, the bee dances in a figure eight. The other bees know how far away the nectar is by the way the bee dances.

They know where the nectar is by the way the bee points when it wags its tail. The bee talks with its wings, too. They make buzzing sounds.

People have put dummy bees into hives to dance and make sounds like real bees. The real bees understood and flew to the sugar feeder that had been put out for them. By using these dummies, people have actually talked to bees.

1 Bees talk to each other by ..... ☐
a singing **b** dancing **c** flying

2 Nectar is used for ..... ☐
a making honey **b** building beehives **c** dancing

3 A dancing bee wags its tail when it ..... ☐
a goes in a circle **b** goes in a figure eight **c** points in the direction of the nectar

4 People put dummy bees into hives to ..... ☐
a talk to the real bees **b** scare the real bees **c** play a joke

5 The best name for this story would be ..... ☐
a Bees Use Nectar for Making Honey **b** Bees Talk by Dancing **c** Bees Are Dummies

STOP HERE

Name _____ Total right, Story A _____

Total right, Story B _____

Total SLG score _____

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Story B

Bionics—what is it? A new kind of airplane? A new kind of ice cream? No . . . it's a new science. The word is pronounced *by-on'-ics*. Bionics began around 1950. In this new science, humans are learning from animals.

Animals have many unusual abilities we do not yet understand. How can birds fly thousands of miles across land and sea and return to their same feeding grounds each year? How can a bat fly in total darkness without striking the walls of a room? And—an even more puzzling question—how can it dodge the tiny wires scientists string across the room to study the remarkable radar system of this little "flying mouse"?

The sand flea, an insect no bigger than the head of a pin, finds its way by taking a bearing on the moon. It does this with a light-sensitive cell and a microscopic, computerlike brain.

A dolphin can find a fish in a completely darkened pool. Does it smell the fish? We used to think so. But bionic scientists have found that this fishlike creature projects a series of sounds from its high, melonlike forehead. When these sounds strike an object and return to the dolphin—thousands of times a second—they can tell how far away the object is. They also tell much about the kind of object it is. Dolphins have located objects a quarter of a mile away!

What does all this mean to us? By studying bats, dolphins, and other creatures, we have found valuable clues for designing radar and sonar equipment. These two are necessary for national defense. They have also become increasingly important in our everyday lives. Because of radar, our huge jetliners can fly in almost any weather. They can land on foggy airfields the pilot can't even see. Sonar helps fishermen spot schools of fish deep in the ocean and bring better seafood to our tables. Humans have designed some wonderfully complex instruments and machines, but nature is still our great teacher. Bionics is helping us to learn.

1 Bionics began .....
a more than a thousand years ago **b** about two hundred years ago
c around 1950 **d** around 1850

2 The story says that we are studying animals in order to .....
a learn their names **b** make better pets of them
c teach them to dodge wires **d** learn about their unusual abilities

3 In this story, the bat has been called a .....
a flying mouse **b** radar system
c wire dodger **d** computerlike brain

4 The sand flea has a .....
a light-sensitive cell **b** computerlike brain
c pinhead **d** Both **a** and **b**

5 Dolphins are able to .....
a have watermelons in their foreheads **b** smell fish
c send out sounds **d** Both **a** and **b**

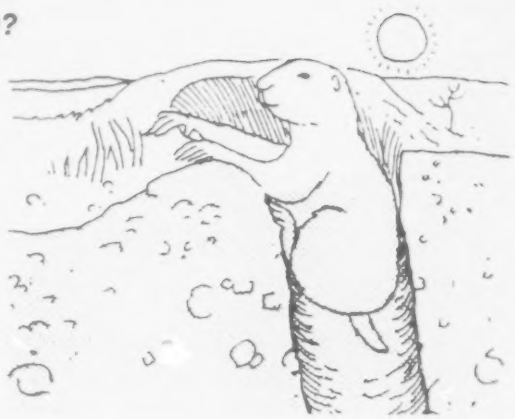
6 Dolphins can locate objects .....
a ten miles away **b** a quarter of a mile away
c by smelling **d** several miles away

7 Our radar and sonar equipment .....
a developed from the science of bionics **b** is better than that of bats and dolphins
c was developed by bats **d** was developed by dolphins

8 Implied but not stated .....
a Nature is still our great teacher. **b** Sonar helps fishermen spot schools of fish.
c Animals are better scientists than humans. **d** In some ways, animals are ahead of humans.

Appendix F
Site C Pretest and Posttest

Do prairie dogs belong to the dog family?



1 Prairie dogs can bark. But they are not in the dog family. Dogs belong to an animal family that eats meat. Prairie dogs eat plants. They belong to the squirrel family.

2 Prairie dogs are mostly brown. They are small and fat like squirrels. They have round ears like squirrels, too. But their tails are short and flat.

3 Prairie dogs like to live together. About ten of them may live in the same hole. Others live nearby. All of them make a huge prairie dog town.

4 Prairie dogs must watch all the time. Other animals and people hunt them. The eyes of a prairie dog are near the top of its head. The little animal can stay safely in its hole when it looks out. If one prairie dog sees something, it barks. Then all the prairie dogs go deep into their holes. The prairie dog town acts together when trouble is near.

Mark the circle (○) beside the right answer.

1. Prairie dogs do not _____.
   ○ bark ○ live together ○ eat meat ○ eat plants
2. Which word in paragraph 1 means are part of?
   ○ belong ○ eat ○ bark ○ family
3. The story does not tell about the prairie dog's _____.
   ○ food ○ babies ○ home ○ looks
4. Which paragraph tells who hunts prairie dogs?
   ○ 1 ○ 2 ○ 3 ○ 4
5. SMALL means almost the same as TINY. Huge means almost the same as _____.
   ○ flat ○ short ○ large ○ little
6. Prairie dogs are big and fat like squirrels. ○ True ○ False
   A prairie dog's eyes are near the top of its head. ○ True ○ False
7. The story does not say, but we can decide that prairie dogs live in holes _____.
   ○ to be safe ○ because they are unfriendly
   ○ because they are not in the dog family

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Appendix G
Site D Pretest and Posttest

COMPREHENSION TEST

Read the passage. Fill in the circle before the correct answer.

In the past twenty years, riding bicycles has become increasingly popular among people of all ages. Bicycles have long played an important part in the lives of American youths. But today an ever greater number of adults pedal along roadsides and bicycle paths. These new riders are often trying to become fit or lose weight. They have found that bicycling is a pleasant way to stay healthy.

This is certainly good news for bicycle manufacturers. But it has also brought some problems. With all these added people on the road, bicycle safety has become a matter of real importance.

Bicycle safety is mostly a matter of common sense. People who are accident-prone should ride only on bicycle paths, where they will not be badly hurt. There are also a number of rules that riders should follow, particularly when riding on streets or highways. Bicyclists should never ride against the traffic, nor should they carry other people on their bicycles. It is also wise to ride single file on busy streets and to walk bicycles across busy intersections. By following these and other rules, bicycle riders will not only stay healthy but will avoid becoming a statistic in the next National Safety Council report.

In one recent year, the National Safety Council reported that 34 thousand bicycle riders were hurt in highway accidents. In that same year, another six hundred riders were killed. Since the introduction of crash helmets in 1980, the number of injuries and deaths from bicycling accidents has gone down. Today, more and more riders have become aware of the dangers of bicycling. They are wearing helmets and paying closer attention to cycling rules.

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1. What will most likely happen next?

   (A) The number of bicycling accidents will increase.
   (B) People will stop riding bicycles.
   (C) The National Safety Council will outlaw bicycling.
   (D) The number of bicycling accidents will continue to decrease.

2. Which is the best clue to the outcome of this passage?

   (A) Since the introduction of crash helmets, the number of bicycling injuries has gone down.
   (B) In one recent year, 34 thousand bicycle riders were hurt in highway accidents.
   (C) Many adults have found bicycling a pleasant way to stay healthy.
   (D) These new riders are often trying to become fit or lose weight.

3. What is the topic of this passage?

   (A) traffic accidents
   (B) staying healthy
   (C) bicycle safety
   (D) losing weight

4. Which detail best supports the main idea of this passage?

   (A) The National Safety Council reports bicycle accidents each year.
   (B) With all these added people on the road, bicycle safety has become a matter of real importance.
   (C) Bicycling has become a popular way to stay fit.
   (D) The increasing popularity of bicycle riding is good news for bicycle manufacturers.

5. The author's main purpose in this passage is to ____.

   (A) explain the job of the National Safety Council
   (B) persuade adults to stay fit
   (C) make people more concerned with bicycle safety
   (D) encourage companies to make better bicycles

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John Muir first entered Yosemite Valley in California during the summer of 1868. In some ways, Muir never left Yosemite. For five years, he made his home in this forest wilderness, then later led a movement trying to make Yosemite a national park. Muir also spent a lifetime defending Yosemite from actions that threatened to spoil its rich, natural beauty.

At one time, the United States government gave the city of San Francisco permission to build a dam that would flood part of the Yosemite Valley. When Muir learned of the plan, he tried to have it canceled. In a letter to President Theodore Roosevelt, Muir stated that we should all do our part to make sure that our wild mountain parks remain unspoiled for those who come after us. Roosevelt had great respect for his friend's opinion and wanted to help him. But his duty as president was to consider the interests of everyone involved. Because he believed the dam would aid the people of California, he allowed them to build it. Despite the president's decision, Muir and Roosevelt remained friends.

John Muir never stopped fighting for what he thought was right. Other people who believed that America's forest lands should be protected also continued the struggle. They lost some of the battles, but their efforts to protect Yosemite eventually paid off.

6. What most likely happens next?

   Ⓐ Yosemite is preserved as a national park.
   Ⓑ Congress floods the Yosemite Valley again.
   Ⓒ John Muir persuades California to take over the Yosemite Valley.
   Ⓓ The United States government tears down the Yosemite Valley dam.

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7. If John Muir could have proved that the dam would not aid California, then _____.

   (A) Muir would have given up the battle
   (B) Roosevelt would have ended his friendship with John Muir
   (C) Muir would have bought the Yosemite Valley
   (D) Roosevelt would have refused permission to build the dam

8. What is the main idea of this passage?

   (A) Yosemite Valley is a good place to go camping.
   (B) John Muir was a naturalist who fought to save the Yosemite Valley.
   (C) President Roosevelt had no interest in protecting forest lands.
   (D) The United States government let San Francisco build a dam in the Yosemite Valley.

9. The author's main purpose in this passage is to _____.

   (A) describe the effects of flooding on wilderness areas
   (B) inform people about John Muir's efforts to protect forest lands
   (C) entertain people with a story about President Roosevelt
   (D) persuade people to visit Yosemite Valley

10. The author probably wrote this passage for people who are interested in _____.

    (A) visiting a national park
    (B) moving to California
    (C) preserving wilderness areas
    (D) learning about presidents

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1 John Bartram was born in the small town of Darby, Pennsylvania, in 1699. Today John Bartram is known as the "father of American botany." Botany is the study of plant life. Botanists classify plants and study the ways in which plants reproduce. They also look at plants in terms of their value to people.

2 John Bartram was the first American to hybridize flowering plants. He crossed different kinds of plants to produce new plants with some of the characteristics of each parent plant. In this way he increased the number and quality of plants in the United States. This process has helped farmers to grow more crops. They have also used hybridization to strengthen plants against disease and to improve the nutritional value of many crops.

3 In 1728, Bartram began the first botanical garden in the United States. Today, most large cities in the world have beautiful gardens of this kind. Many people visit them each year to enjoy the beauty of the plants. Because the gardens generally have large collections of many different plants, they may also be used for research and teaching.

4 Bartram made many explorations for plants in the United States. In 1743, King George III of England asked Bartram to explore northern Canada and to report on the plant life there. Bartram often sent seeds and clippings of plants that he found on these trips back to waiting European botanists. This opened the lines of communication between American and European scientists.

5 Bartram and his son William were both interested in the plants of the southeastern United States. In 1765, they realized that no one had ever studied the plant life in states south of the Carolinas. They began to plan a trip to Florida.

11. What most likely happens next?

(A) Bartram sets up a botanical garden in Florida.
(B) The Bartrams go to Florida to study plant life.
(C) Bartram discovers that plants are difficult to hybridize in Florida.
(D) King George III asks the Bartrams to explore Florida.

12. What is the main idea of this passage?

(A) Botanical gardens are useful for studying plants.
(B) John Bartram and his son William were interested in the plants of the southeastern United States.
(C) King George III hired Bartram to explore North America.
(D) John Bartram made many contributions to botany.

13. Which detail best supports the main idea of the passage?

(A) Botanists classify plants and study the way they reproduce.
(B) Today, most large cities in the world have beautiful gardens of this kind.
(C) John Bartram increased the number and quality of plants in the United States.
(D) King George III asked Bartram to explore Canada.

14. In the second paragraph, the author's purpose is to ____.

(A) describe the process of hybridization
(B) teach people all about botany
(C) persuade people to visit botanical gardens
(D) describe the plant life of the United States

15. The author's main purpose in this passage is to ____.

(A) persuade students to become botanists
(B) entertain people with a story about plants
(C) explain the process of hybridization
(D) describe the contributions of John Bartram

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Read the passage. Fill in the circle before the correct answer.

Mike knew the race would be a long one. The course stretched over 18 miles of dirt roads, grassy hills, and asphalt highway. Mike had been training for six months. Every evening, six days a week, he did 75 push-ups, 100 sit-ups, and 200 deep-knee bends before running 5 or 10 miles. He lost 30 pounds and shed his neighborhood nickname of "Pudge."

On Saturday, 70 men and women gathered on the town common. Among them was a one-time Olympic star who was expected to win, but this did not detract from the other runners' enthusiasm. For most of them, it was more important to finish the race than to win it. This was certainly the case with Mike. Despite months of preparation, he was still worried because he had never run more than 10 miles at any one time.

The race commenced at one o'clock. From the beginning there was little suspense as to who would win. The one-time Olympian set a pace of 6 minutes a mile and finished 15 minutes before his nearest challenger. An hour later, a tired but happy Mike crossed the finish line. When all 60 men and women who had completed the course gathered again on the town common, they all looked like winners.

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16. How did Mike feel after finishing the race?

Ⓐ disappointed
Ⓑ jealous
Ⓒ worried
Ⓓ proud

17. When does the race take place?

Ⓐ Sunday afternoon
Ⓑ Saturday afternoon
Ⓒ Sunday morning
Ⓓ Saturday morning

18. Based on this passage, which statement is most likely true?

Ⓐ Long-distance running can be very satisfying.
Ⓑ Courses for long-distance races are never shorter than 18 miles.
Ⓒ It is important to train for at least six months before running a long race.
Ⓓ Courses for long-distance races always include both hills and flat ground.

19. Based on this passage, which statement is most likely true?

Ⓐ Finishing a long race is more important than winning.
Ⓑ Former Olympians usually win long races.
Ⓒ Winning is never important to long-distance runners.
Ⓓ Most long-distance runners complete the races they enter.

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20. Mike was nervous before the race because _____

Ⓐ there were 70 runners
Ⓑ most of the town would be watching
Ⓒ he had never run 18 miles before
Ⓓ he knew that a former Olympian would be running

Bob watched the work horses come off the trucks at the fairgrounds. He would be competing in a contest to decide which team of horses could pull the most weight. Bob's family lived on a hilly area near the fairgrounds. Their horses, Fred and Maya, often pulled logs off the steep hills that surrounded the family farm. It was safer to haul logs off the hills with horses. Tractors often tipped over on steep hills.

Bob watched as people crowded the gate to buy tickets. The money from the sale would help send some needy children to camp. The contestants didn't really care about winning. Everyone wanted to help the children.

Bob glanced over at the first contestant hitching his team up to the wooden sled. A tractor placed two concrete blocks on the sled, and the horses pulled it without any trouble. Bob watched the tractor drop two more blocks onto the sled. Bob shouted, "You can do it!" to the team and driver, and the horses pulled the sled again. After two more blocks, the horses tried but couldn't move the sled at all.

When Bob's turn finally came, he knew that Fred and Maya would pull more weight than the other horses. The loads of logs they pulled every day were usually heavier than the weight on the sled.

When the official awarded the ribbons to each team, Bob looked up at the grandstand and saw many people applauding. He had never expected so many people to come. He hoped that because they supported this event, they would support other worthwhile causes in the future. Even though his team had pulled the most weight, Bob knew there were no losers among the teams of horses. They had all helped raise money. Bob couldn't wait to present the check to the camp director.

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21. Bob goes to the contest because he wants to ____.

(A) train his horses to pull logs
(B) raise money to send the needy to camp
(C) beat the other teams
(D) hear the applause from the crowd

22. Based on this passage, which statement is most likely true?

(A) Summer camp for children is unnecessary.
(B) Horses are more important than children.
(C) Tractors are dangerous vehicles.
(D) People will do a lot for a good cause.

23. Most people in the grandstand probably felt that ____.

(A) helping needy children is a good idea
(B) summer camps are inexpensive
(C) Fred and Maya are a worthy cause
(D) horses should not be used to pull logs

24. Bob feels good at the end of the competition mainly because ____

(A) the horses will get a rest
(B) the children will get to go to camp
(C) all the people will go home
(D) he won a ribbon

25. Bob's family uses horses to pull logs because ____.

(A) tractors need too much attention
(B) horses are stronger than tractors
(C) tractors can't pull the weight
(D) horses are safer than tractors

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Al Williams was worried. As the defendant in a criminal case, he had just listened to four people state they had seen him steal another person's car. As the last person got down from the witness stand, even Al's lawyer no longer seemed to believe him. By the time the prosecution had finished its closing arguments, Al was not sure that he believed himself.

Sitting in a cell afterwards while waiting for the jury's verdict, Al wondered how this could have happened to him. He knew that he was an honest man, but that was immaterial if he could not prove it. Al also knew that he had not been in town the day of the theft, but he could not prove that either

Al's thoughts were then interrupted by his lawyer, who looked oddly happy given the circumstances of the case. The reason she was so cheerful soon became clear when a guard appeared, released Al from his cell, and told him that he was free to leave. Earlier that day, Al's lawyer explained, the police had caught a man stealing a car. The man looked enough like Al to be his brother. After questioning, this other man admitted to having committed the crime for which Al had been charged. The charges against Al had been dropped.

On the way out, Al's lawyer asked him if he wanted to see his look-alike. No, he answered, he was not the least bit interested. He only wanted to go home. As he left the courthouse, though, Al did wonder what the jury would have decided.

26. How did Al feel while he waited for the jury's verdict?

Ⓐ hopeful
Ⓑ thoughtful
Ⓒ angry
Ⓓ anxious

27. What happens in this story?

Ⓐ Al is almost convicted of a crime he did not commit.
Ⓑ A jury decides that Al did not steal the car.
Ⓒ Al's lawyer helps him to deal with his worry and self-doubt.
Ⓓ The police catch Al stealing a car.

28. Based on this passage, which statement is most likely true?

Ⓐ Juries are seldom right.
Ⓑ People sometimes make mistakes.
Ⓒ Judges are seldom fair.
Ⓓ People tend to have poor memories.

29. Al was freed because ____.

Ⓐ the jury thought he was innocent
Ⓑ witnesses did not recognize him
Ⓒ the police caught the real criminal
Ⓓ his lawyer argued well

30. Al was worried while sitting in the courtroom because ____.

Ⓐ the prosecution made a strong closing argument
Ⓑ several people said they saw him commit a crime
Ⓒ his lawyer felt his case was hopeless
Ⓓ he was out of town on the day of the crime

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Appendix H
Site E Pretest and Posttest

A Read the sentences. Fill in the circle in front of the word that best completes each sentence.

SAMPLE

★ That large brown house is the _____ of our mayor.

Ⓐ hurricane
Ⓑ residence
Ⓒ atmosphere
Ⓓ rooster

1 After I broke Mr. Berger's window by mistake, I went to _____ to him.

Ⓐ persuade
Ⓑ apologize
Ⓒ praise
Ⓓ attach

2 After the kitten had played with the yarn, Mom _____ the yarn into a ball.

Ⓐ recognized
Ⓑ reminded
Ⓒ realized
Ⓓ rewound

3 If you forget to write a note of thanks when you receive a gift, you may seem _____.

Ⓐ ungrateful
Ⓑ unbelievable
Ⓒ unruly
Ⓓ useful

4 When the concert was canceled, the ticket holders got _____.

Ⓐ radars
Ⓑ registers
Ⓒ refunds
Ⓓ robots

5 At the party, my sister sang songs and _____ all of us.

Ⓐ entertained
Ⓑ escaped
Ⓒ elected
Ⓓ evaluated

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6 Anger is a very different _____ from love.

Ⓐ emergency
Ⓑ emotion
Ⓒ engine
Ⓓ empire

7 We couldn't hear the music on the radio because there was too much _____.

Ⓐ sculpture
Ⓑ static
Ⓒ statue
Ⓓ supplies

8 When Jean broke her arm, she found writing very _____.

Ⓐ awkward
Ⓑ aimless
Ⓒ angry
Ⓓ alone

9 The robbers did not want to leave any clues or _____ behind them.

Ⓐ bushels
Ⓑ reaction
Ⓒ evidence
Ⓓ advice

10 If creatures from another planet came here, we would call them _____.

Ⓐ circuits
Ⓑ aliens
Ⓒ headlands
Ⓓ meteorologists

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STOP

B Read each passage. Then fill in the circle in front of the best answer to each question.

★**SAMPLE**

Goldberg Launches a Rocket

Rube Goldberg was a cartoonist famous for drawing funny inventions. In one of his cartoons, Goldberg shows us an imaginative way to launch a rocket. Four men are standing together singing a sad song. The song begins to **sadden** the man next to them, and he starts to cry. The crying man's tears fall on the soil around a nearby flower. The flower grows high and bumps a woman sitting on top of a slide. The woman slides down to awaken a sleeping bugle player seated at the bottom of the slide. Then, the bugle player leaps to his feet and blows the bugle in the ear of a man with a cold. The man with the cold sneezes. The mighty sneeze starts to turn a fan, which then spins an engine. Finally, the spinning engine launches the rocket.

S1 What happens last in Goldberg's cartoon?

Ⓐ The man with the cold sneezes.
Ⓑ A bugle was blown in his ear.
Ⓒ The spinning engine launches the rocket.
Ⓓ Four men are standing together singing a sad song.

S2 Choose the meaning of the underlined word.

The song begins to **sadden** the man next to them, and he starts to cry.

Ⓐ cause to be sad
Ⓑ not sad
Ⓒ a person who is not sad
Ⓓ sad again

Now read the passages on the following pages and answer the questions that follow them.

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Who Made the Bicycle?

No one person invented the modern bicycle. It is a machine that many people helped to design through the years. First, one person created one feature. Later, someone else added another.

The earliest bicycle was a clumsy machine called a hobby horse. A hobby horse was very simple. It was just two wheels connected to a wooden bar. It had no handlebars, no pedals, and no brakes. A rider sat on the bar between the front and **back** wheels. The hobby horse moved when its rider pushed it forward with his or her feet.

These hobby-horse bicycles were never very popular. The riders quickly grew tired because their legs did most of the work. Riders also couldn't steer these bikes because the front wheels couldn't turn. People could move in one direction only—straight ahead.

Two inventors solved the hobby horse's problems. First, in 1816, a German named Baron von Drais invented a front wheel that could be turned from side to side. This allowed riders to go where they wanted. Later, in 1839, a Scottish blacksmith named Kirkpatrick Macmillan added foot pedals. Riders could now rest their legs while the bikes coasted.

These bikes were much better than the earlier hobby horses, but they were still **dangerous** to ride. They had no brakes, so riders couldn't stop them. They were uncomfortable, because most had hard wooden wheels with iron tires. People called them "boneshakers," because they gave riders such a bumpy ride.

Later inventors improved these early bicycles. About 1882, an Englishman named H. J. Lawson made the first truly safe bike. This bike could actually be stopped when the rider wanted. Eight years later, a Scottish surgeon named John Dunlop made bicycles comfortable. He invented the air-filled rubber tire. This made the ride smoother. By 1900, bikes were finally fun, safe, and pleasant to ride.

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11 What happened first to solve the hobby horse's problems?

Ⓐ Eight years later, John Dunlop invented the air-filled rubber tire.
Ⓑ First, in 1816, Baron von Drais invented a front wheel that could be turned.
Ⓒ Later, in 1839, Kirkpatrick Macmillan added foot pedals.
Ⓓ About 1882, H. J. Lawson made the first truly safe bike.

12 Which sentence tells the main idea about hobby-horse bicycles?

Ⓐ They were clumsy and hard to ride.
Ⓑ They had no handlebars.
Ⓒ The front wheels couldn't turn.
Ⓓ They had wooden bars.

13 Foot pedals made bicycles easier to ride because riders could _____.

Ⓐ turn the front wheel from side to side
Ⓑ move in one direction only—straight ahead
Ⓒ stop when they wanted
Ⓓ rest their legs while the bikes coasted

14 Choose the meaning of the underlined word.

A rider sat on the bar between the front and **back** wheels.

Ⓐ in a former time
Ⓑ in reply
Ⓒ rear
Ⓓ part of the body

15 Choose the meaning of the underlined word.

These bikes were much better than the earlier hobby horses, but they were still **dangerous** to ride.

Ⓐ full of danger
Ⓑ without danger
Ⓒ a person who likes danger
Ⓓ less dangerous

16 What happened last?

Ⓐ About 1882, H. J. Lawson made the first truly safe bike.
Ⓑ People could move in one direction only—straight ahead.
Ⓒ By 1900, bikes were finally fun, safe, and pleasant to ride.
Ⓓ First, one person created one feature.

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What Did Jenner Discover?

Smallpox is a disease that once killed millions of people every year. If one person in a family caught smallpox, the other members would almost always get the disease. Because there was no medicine to cure smallpox, almost half the people who got sick died. The ones who didn't die often went blind. During the 1700s, more than 60 million people died from this disease.

Dr. Edward Jenner was determined to find a cure for smallpox. Jenner was an English country doctor born in 1749. Jenner learned about all the plants and animals around him. He also studied the nearby farmers. Jenner noticed that the farmers rarely seemed to **catch** smallpox. He wondered why.

Jenner already knew that people caught smallpox only once. Anyone who recovered from the disease never caught it again. Somehow, catching smallpox once seemed to **toughen** a person's body so that it could fight off the disease.

Several people told Jenner that anyone who caught cowpox didn't catch smallpox. Cowpox is a mild disease that people can catch from cows that they milk. Many doctors at the time paid no attention to such stories. But Jenner wondered if the stories might be true. He kept records on twenty-seven people who had caught cowpox. Not a single one of them caught smallpox.

Jenner thought that cowpox protected people from smallpox. He believed this so strongly that he decided to test his idea. He gave some cowpox germs to a person named James Phipps. After Phipps got the cowpox germs, he caught cowpox. Soon Phipps was better. Then Jenner gave him smallpox germs. Phipps stayed healthy. Cowpox had protected Phipps from smallpox.

Jenner used his discovery to make a medicine called a vaccine. This vaccine helped to toughen the body so that it could fight off smallpox germs. Best of all, Jenner's vaccine did not cause people who used it to get sick. It kept people safe from smallpox. Jenner freely gave it to anyone who wanted it.

Jenner's discovery changed the world. Today, no one catches smallpox. The last case was in 1977. In 1980, the World Health Organization said that smallpox had disappeared from the earth.

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17 Choose the meaning of the underlined word.

Jenner noticed that the farmers rarely seemed to **catch** smallpox.

Ⓐ get to a train or bus on time
Ⓑ become sick with
Ⓒ get balls thrown by a pitcher
Ⓓ a thing that fastens shut

18 From studying farmers, Jenner probably learned that _____.

Ⓐ people only caught smallpox once
Ⓑ a person who caught cowpox might not catch smallpox
Ⓒ cows caught diseases from people
Ⓓ catching smallpox was dangerous

19 Choose the meaning of the underlined word.

Catching smallpox once seemed to **toughen** a person's body so that it could fight off the disease.

Ⓐ not tough
Ⓑ tough long ago
Ⓒ in a tough manner
Ⓓ cause to be tough

20 What happened to Phipps just after he got the cowpox germs?

Ⓐ Phipps stayed healthy.
Ⓑ Phipps caught cowpox.
Ⓒ Phipps got better.
Ⓓ Jenner decided to test his idea.

21 Which sentence tells the main idea of the second paragraph?

Ⓐ Jenner was an English doctor.
Ⓑ Jenner studied the farmers.
Ⓒ Jenner was determined to find a cure for smallpox.
Ⓓ Jenner learned about all the plants and animals around him.

22 Which sentence tells the main idea about James Phipps?

Ⓐ Cowpox had protected Phipps from smallpox.
Ⓑ Phipps was given smallpox germs.
Ⓒ Phipps got cowpox.
Ⓓ Phipps got smallpox.

23 If Phipps had been given smallpox germs before he had had cowpox, he probably would have _____.

Ⓐ gotten better
Ⓑ become a farmer
Ⓒ discovered the vaccine
Ⓓ caught smallpox

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Beatrix Potter and *The Tale of Peter Rabbit*

Beatrix Potter had an unusual childhood. Because she was often sick, she couldn't go to school. Instead, she was taught at home. Beatrix had few friends of her own age. But she was not lonely. Her family had three servants who kept her company. One was a nurse who told wonderful stories. The second was a teacher who helped Beatrix learn about animals and nature. The third was a butler who brought home various animals to **brighten** her day.

Beatrix had quite a collection of animal friends. She had two mice and several rabbits. A family of **bats** lived in an old bird cage. And a hedgehog (a small prickly animal) named Tiggy lived in her bedroom.

Beatrix loved to **draw** her animals. When she grew up, she continued to draw and paint animals and other natural objects. She also liked to make up stories about them. Once, when a young friend of hers was sick, Beatrix sent him a story. It was in a letter filled with pictures. The letter began, "I don't know what to write to you, so I shall tell you the story about four little rabbits, whose names were Flopsy, Mopsy, Cottontail, and Peter."

The child loved the story. His brother and sisters did, too. So Beatrix wrote them stories, too. The whole family enjoyed them. Beatrix wondered if a publisher might like her stories as well. First, she wrote to several different publishers. But she was disappointed when they wrote back. None was interested in publishing her stories. After thinking it over, Beatrix decided to publish a book herself. She called it *The Tale of Peter Rabbit*. Soon, every copy was sold.

Before she could print more, a publisher wrote to her. The publisher had seen her book and wanted to publish it if she would add more color pictures. Beatrix was happy to do this. Later, she published dozens of other children's books. But her first, *The Tale of Peter Rabbit*, is still her best-known work. Today, children all over the world know Peter Rabbit.

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24 Choose the meaning of the underlined word.

The third was a butler who brought home various animals to **brighten** her day.

Ⓐ cause to be bright
Ⓑ not bright
Ⓒ less bright
Ⓓ bright again

25 Choose the meaning of the underlined word.

A family of **bats** lived in an old bird cage.

Ⓐ sticks or clubs
Ⓑ sharp blows
Ⓒ turns in baseball
Ⓓ flying animals

26 Choose the meaning of the underlined word.

Beatrix loved to **draw** her animals.

Ⓐ drag or haul
Ⓑ make a picture of
Ⓒ take a card from
Ⓓ attract

27 What animals do you think Beatrix drew in the letter she sent her sick friend?

Ⓐ a family of bats
Ⓑ four little rabbits
Ⓒ mice
Ⓓ a hedgehog named Tiggy

28 Which sentence tells the main idea about young Beatrix's animals?

Ⓐ Beatrix had quite a collection of animal friends.
Ⓑ She had two mice and several rabbits.
Ⓒ A family of bats lived in an old bird cage.
Ⓓ A hedgehog named Tiggy lived in her bedroom.

29 What happened last in the story?

Ⓐ Soon, every copy was sold.
Ⓑ First, she wrote to several different publishers.
Ⓒ After thinking it over, Beatrix decided to publish a book herself.
Ⓓ Later, she published dozens of other children's books.

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The Dog That Played Checkers

Holly got off the bus and walked three blocks. It was a **glorious** day. The sidewalks were crowded with shoppers and delivery vans. When Holly reached the pet store, she asked to see the owner. "I want a dog," she said. "And it has to be special. You see, I live all alone on a tiny little island. My house has no television, no radio, and no telephone. A boat stops there only once a month. I would like a dog that would keep me company."

"I have just the dog!" said the owner. "Meet Prince. He's perfect! He'll **awaken** you each morning. He'll stay quiet all night. He's smart, he's friendly, and he plays a great **game** of checkers."

"Checkers?" asked Holly. "This dog plays checkers?"

"Yes, he plays checkers," said the owner. "I taught him myself."

At first, Holly thought the owner might be teasing her. But she did like Prince. He was a beautiful silver dog with bright blue eyes. He seemed friendly, so Holly took him home.

She was never sorry. Prince was perfect and he could play checkers. Every morning he would awaken Holly. Then they would play checkers after breakfast. They would play until Holly had to work. Every night, Prince would sleep quietly outside Holly's door. She was never lonely.

One day, Holly's friend Pat came to visit. First, Holly showed Pat her house and the island. Then she introduced Pat to Prince. "He plays checkers," Holly explained. "Would you like to play a game with him?"

Pat agreed, and they sat down to play. While Pat and Prince played, Holly climbed the long staircase to the top floor. She lit the big lamp that would guide ships in the darkness. Afterward, she asked Pat about the dog.

"Isn't Prince amazing?" she said. "Imagine! A dog who plays checkers! Have you ever seen anything so wonderful?"

Pat looked surprised. "What's so wonderful about Prince? He only won the first game, and then I beat him three times!"

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30 Where do you think the pet store is located?

Ⓐ on Holly's island
Ⓑ in a city
Ⓒ in the country
Ⓓ in a park

31 Choose the meaning of the underlined word.

He'll **awaken** you each morning.

Ⓐ cause to be awake
Ⓑ not awake
Ⓒ awake again
Ⓓ stop being awake

32 Choose the meaning of the underlined word.

"He's smart, he's friendly, and he plays a great **game** of checkers."

Ⓐ animals hunted for sport
Ⓑ a special plan
Ⓒ a contest with rules
Ⓓ brave

33 What happened last when Pat came to visit?

Ⓐ First, Holly showed Pat her house and the island.
Ⓑ Then she introduced Pat to Prince.
Ⓒ Pat told Holly that she had beat Prince three times.
Ⓓ Holly asked Pat about the dog.

34 What kind of house do you think Holly lives in?

Ⓐ a farmhouse
Ⓑ an apartment house
Ⓒ a castle
Ⓓ a lighthouse

35 Choose the meaning of the underlined word.

It was a **glorious** day.

Ⓐ without glory
Ⓑ full of glory
Ⓒ before glory
Ⓓ with less glory

STOP

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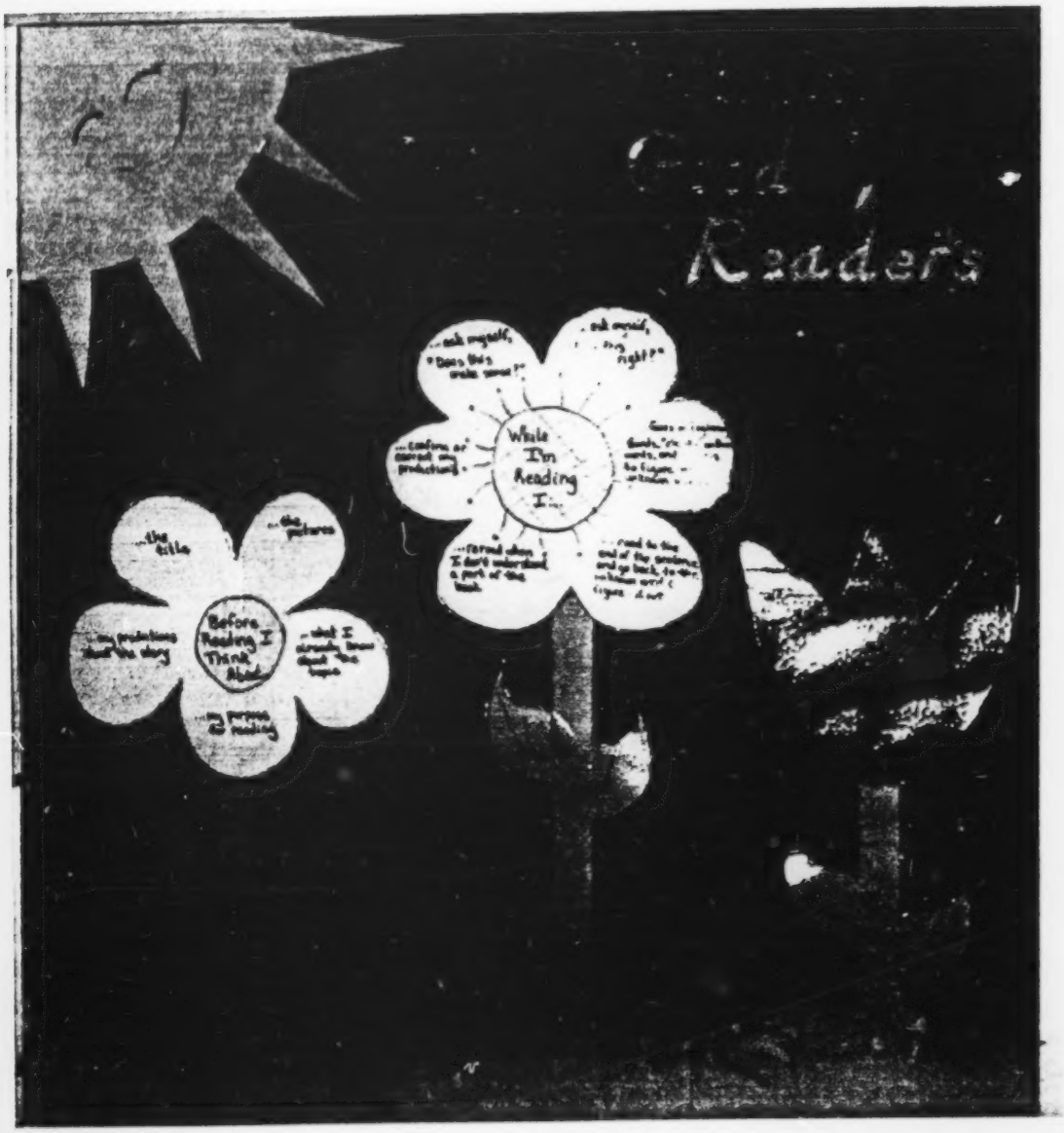
Appendix I
Sample Bulletin Board



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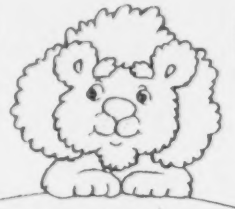
Name _____ Analyzing a story

A Story Web

Setting

Main Characters



Title and Author

Problem

Solution

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a reproducible page

FS-2444 Literature/A Story Web

Appendix K
Site B Sample Story Map

Story Tree

A Story Tree can't be planted; it needs to be built. You can build a Story Tree by following the directions below. Write each item in the correct space on the tree frame.

Write:

1. the name of the main character

2. two words that describe the main character

3. three words that describe where the story takes place (setting)

4. four words telling what the main character wanted in the story

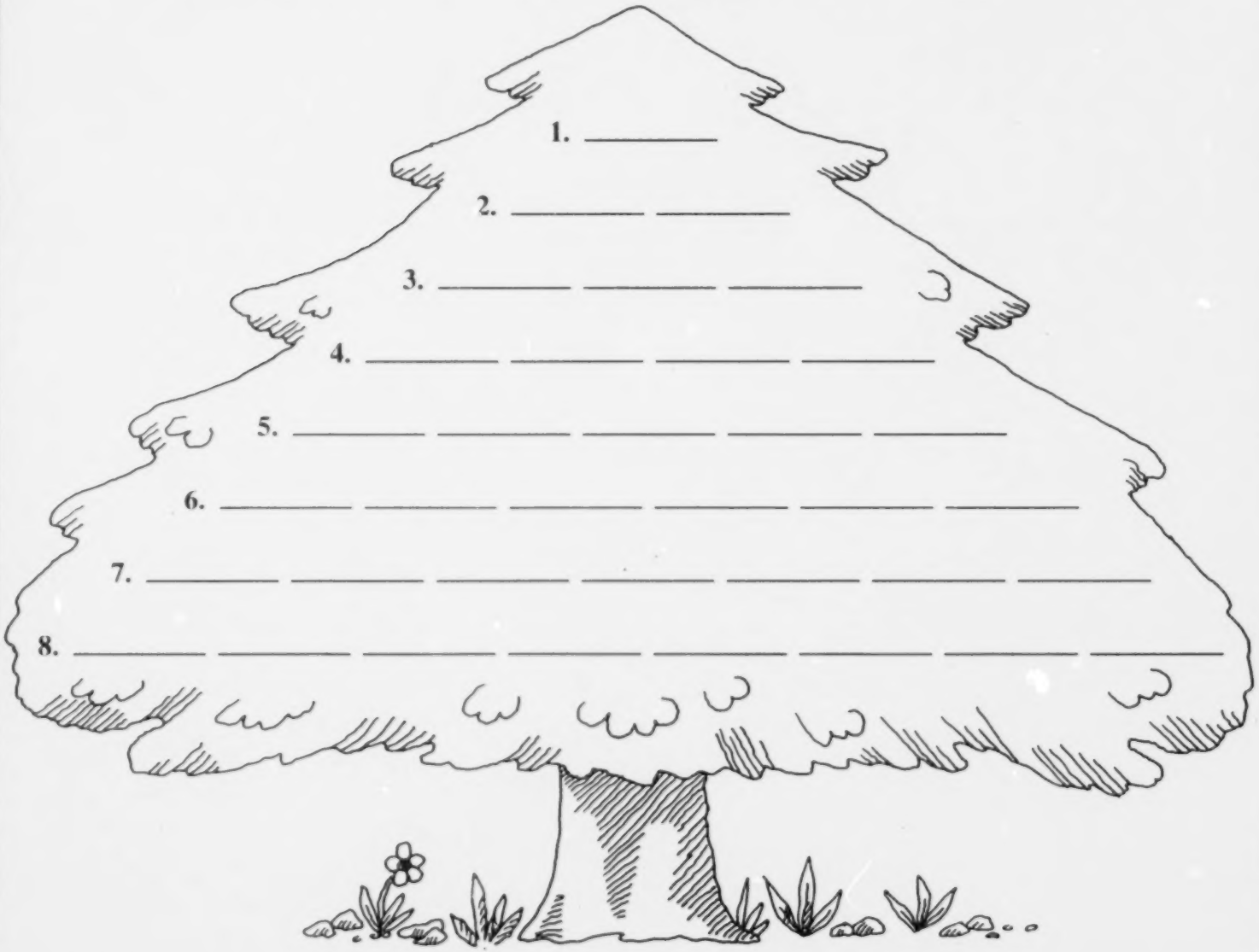
5. five words telling what happened that almost stopped the main character from getting what she or he wanted in the story

6. six words telling how the main character got what she or he wanted in the story

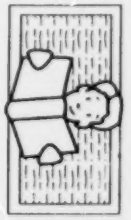
7. seven words that describe the best part of the book

8. eight words telling why you would or would not tell a friend to read this book

Book title _____ **Author** _____



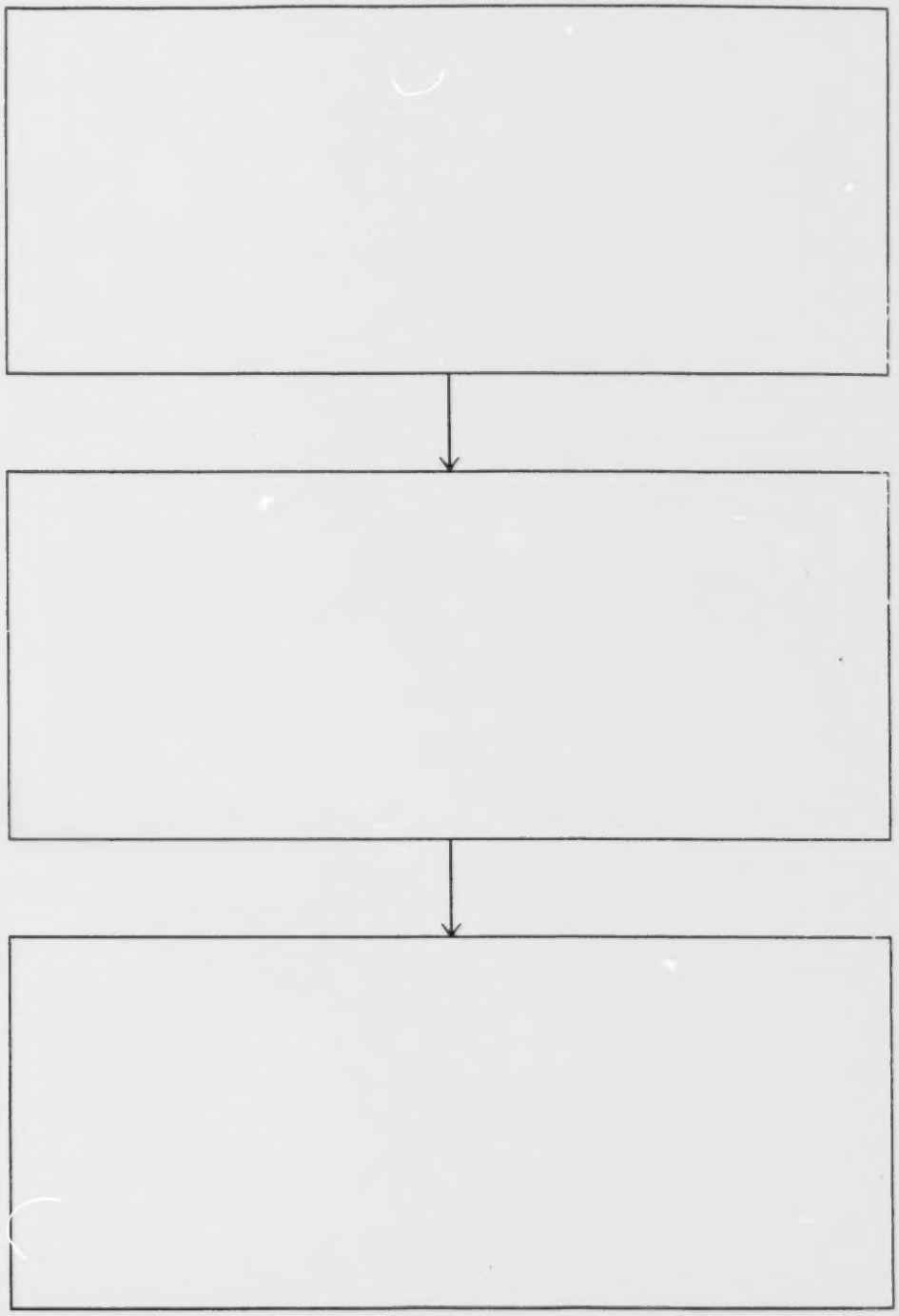
Story Tree (cont.)



Appendix L
Site C Sample Story Map

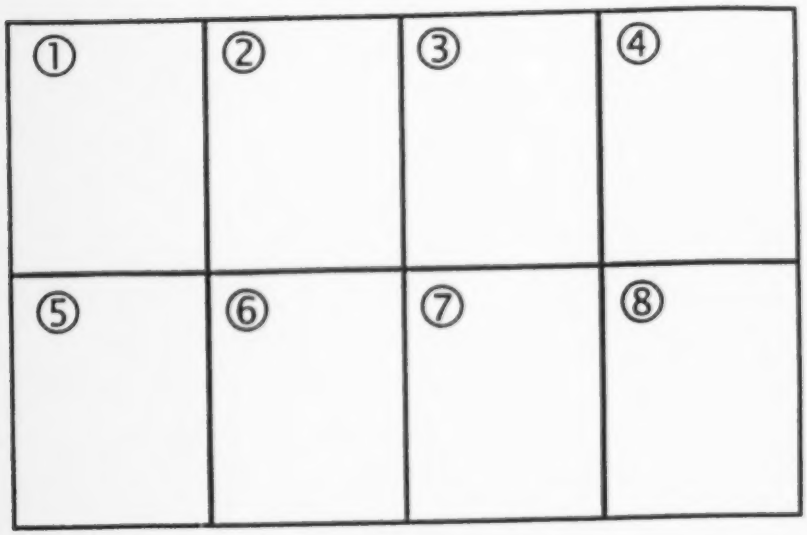
1. STORY MAP

Title: _____ Author: _____



Appendix M
Site D Sample Story Map

Storyboard



① Title of Novel

② Protagonist

③ Setting of the Story

④ Action

⑤ Antagonist

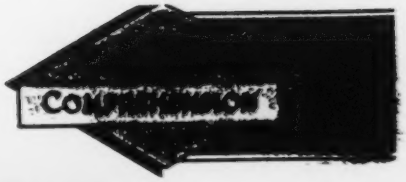
⑥ Problem - Conflict

⑦ Resolution

⑧ Ending

Appendix N
Site E Sample Story Map

NAME _____



Story Mapping

A story map tells the important details of a story in the order they happened.

A. Fill in the story map.

THE SETTING Characters: _____

Place: _____

Time: _____

THE PROBLEM _____

_____

_____

EVENTS LEADING TO RESOLUTION

Event 1 _____

_____

Event 2 _____

_____

Event 3 _____

_____

Event 4 _____

_____

THE RESOLUTION _____

_____

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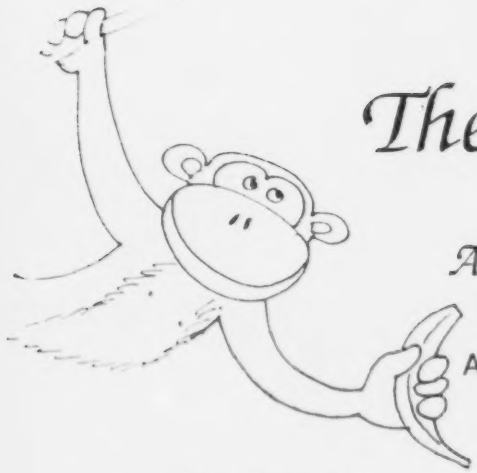
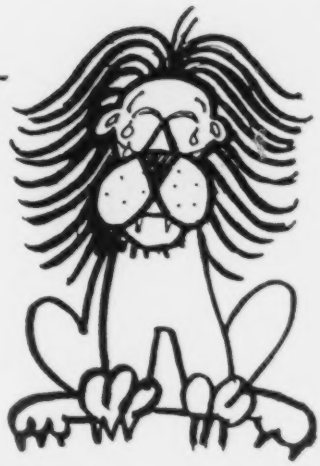
Appendix O
Sample Choral Reading



The Lion's Tail



An African Folktale

A Reader's Theatre Script
Adapted by Lisa Blau

Reader #1	Lion	Hippopotamus
Reader #2	Mouse	Turtle
Reader #3	Monkey	

Reader #1 - Once upon a time a Lion couldn't find his tail.

Reader #2 - He was very sad.

Reader #3 - A mouse scurried along.

Mouse - Why are you so sad mighty lion?

Reader #2 - The little mouse squeaked.

Lion - I can't find my tail.

Reader #3 - The lion cried.

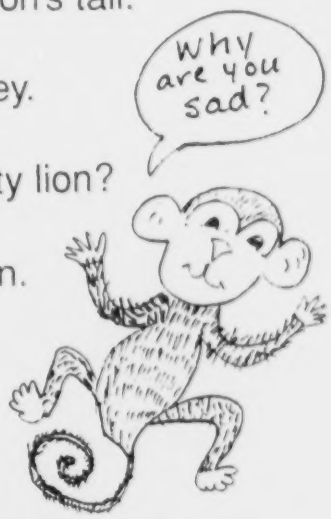
Mouse - I will look for it for you.

Reader #2 - So the little mouse looked in front of the

lion. The mouse looked behind the lion. But he could not find the lion's tail.

Reader #3 - Then along came a monkey.

Monkey - Why are you so sad mighty lion?



Reader #1 - The monkey asked the lion.

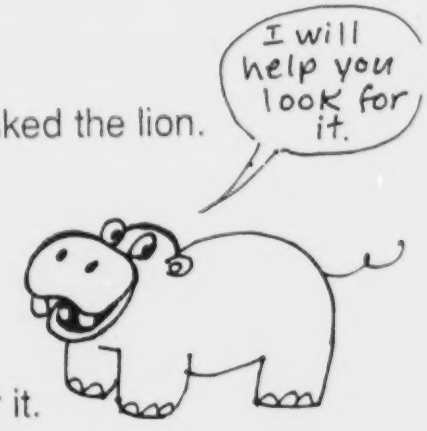
Lion - I can't find my tail.

Monkey - I will help you look for it.

Reader #2 - The monkey looked in front of the lion. The monkey looked behind the lion. He could not find the lion's tail.

Reader #3 - Just then a hippopotamus came crashing through the field.

Hippopotamus - Why are you so sad?



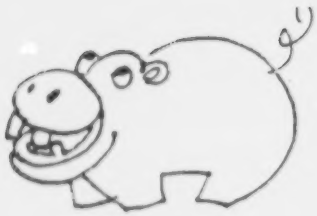
Reader #2 - The hippopotamus asked the lion.

Lion - I can't find my tail.

Reader #1 - The lion cried.

Hippopotamus - I will help you look for it.

Reader #3 - The hippopotamus looked in front of the



lion. The hippopotamus looked behind the lion. He could not find the lion's tail.

Reader #2 - Along came a turtle.

Turtle - Why are you so sad mighty lion?

Lion - I can't find my tail.

Turtle - I'll help you look for it.

Reader #2 - The turtle looked in front of the lion. The turtle looked behind the lion. At last the turtle said to the lion . . .

Turtle - I can find your tail, mighty lion. Please stand up.

Reader #1 - So the lion wiped his tears and stood up.

Reader #2 - And then the turtle said...

Turtle - You couldn't find your tail because you were sitting on it.

Reader #1 - Then the lion said...

Lion - Thank you, friend Turtle. Not only are you very kind, but you are very wise indeed.

All - The End

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